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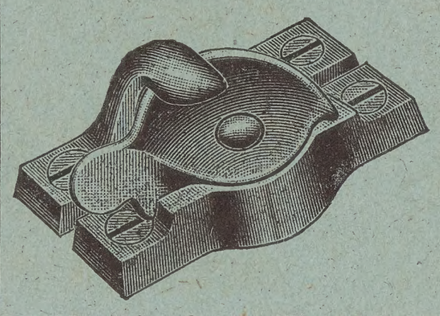

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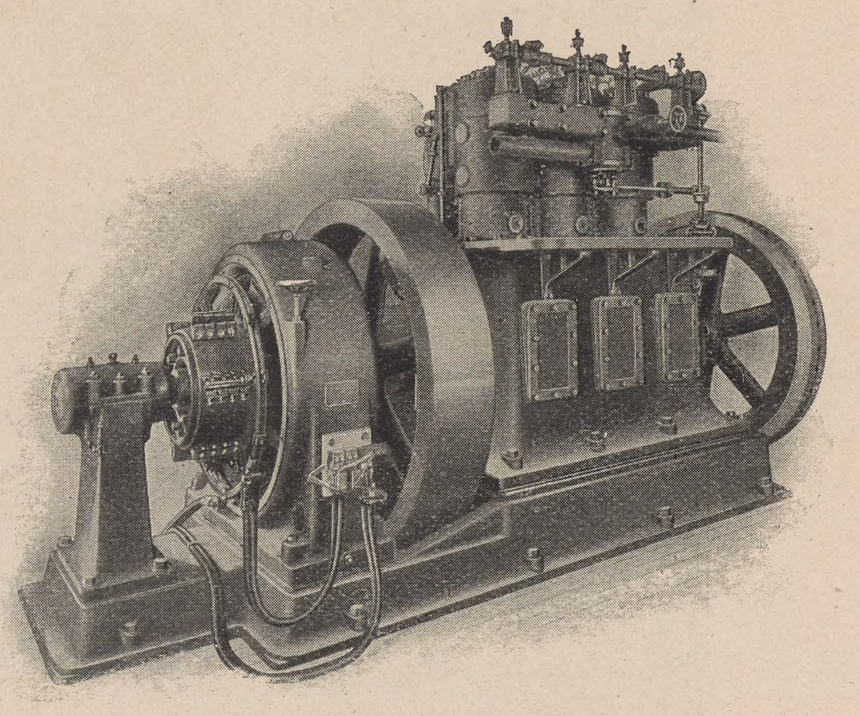

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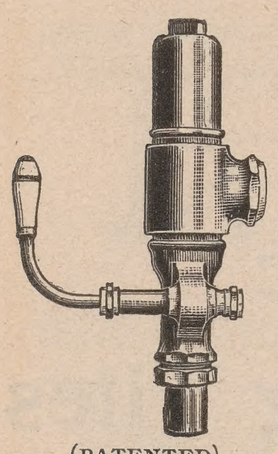

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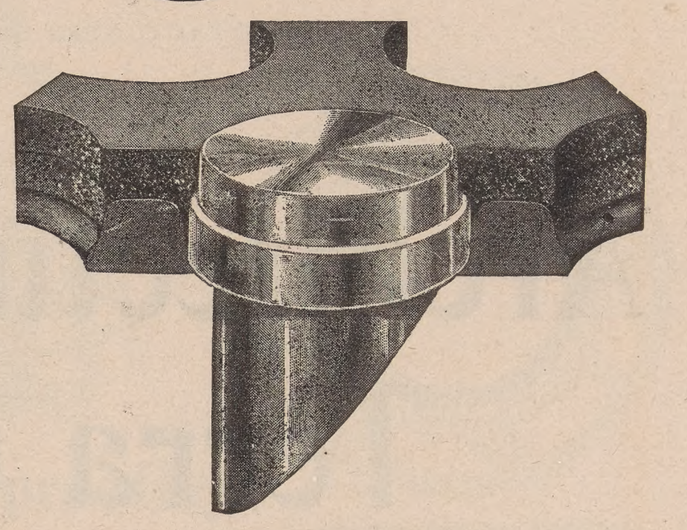

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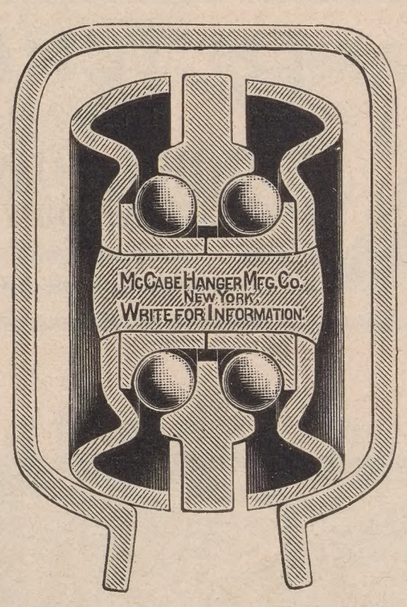

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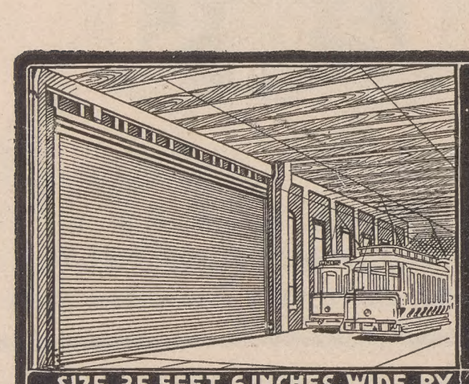

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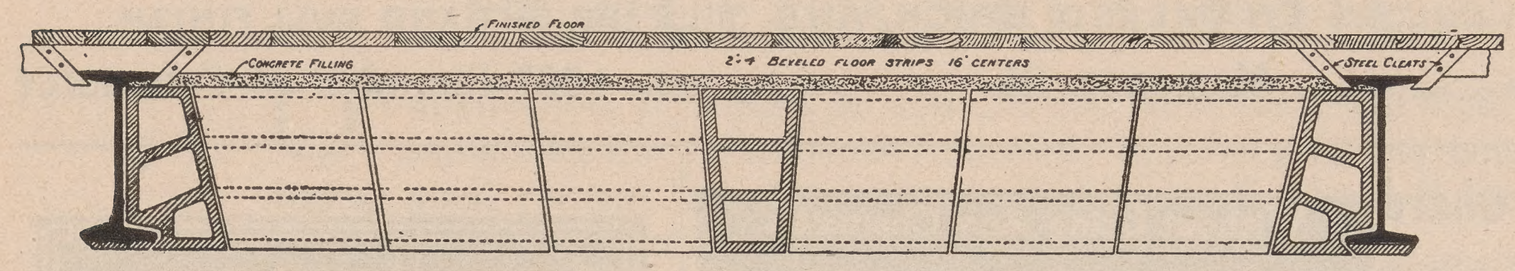

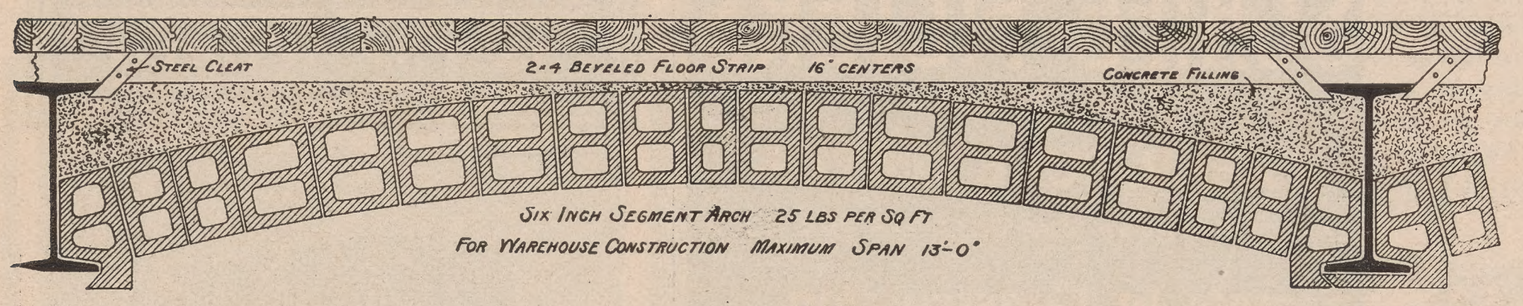
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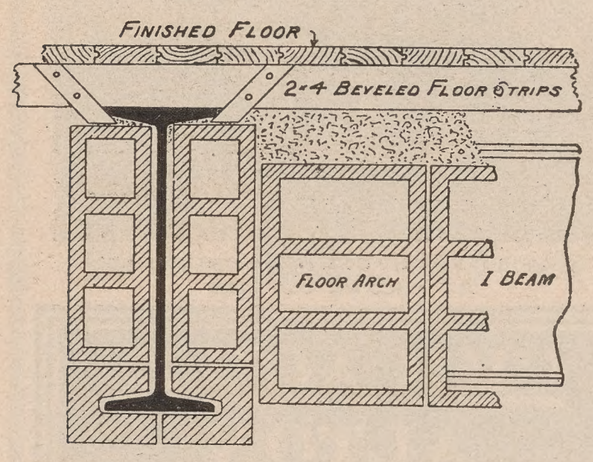

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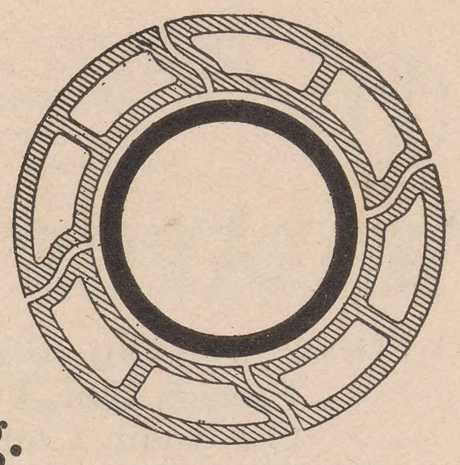

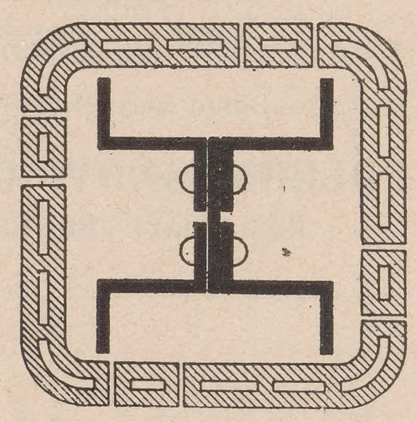

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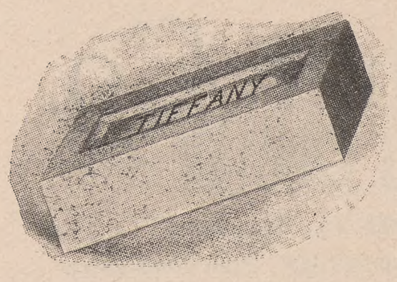

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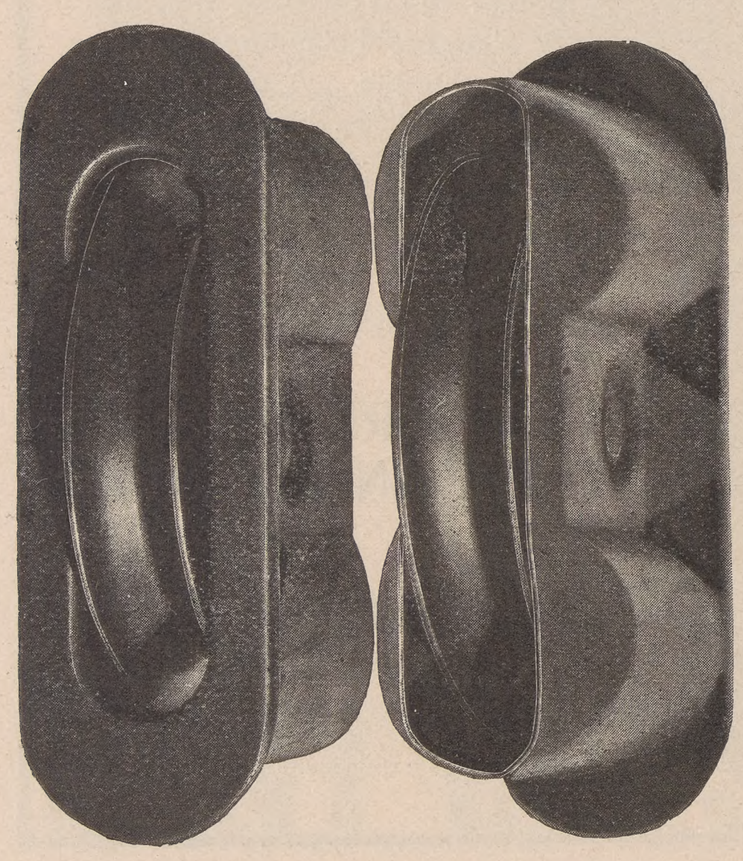

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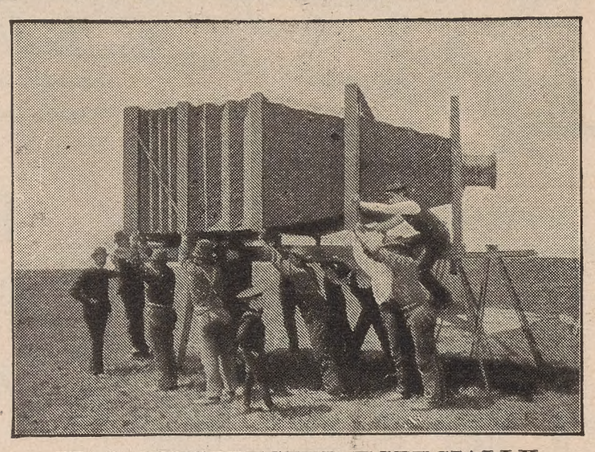

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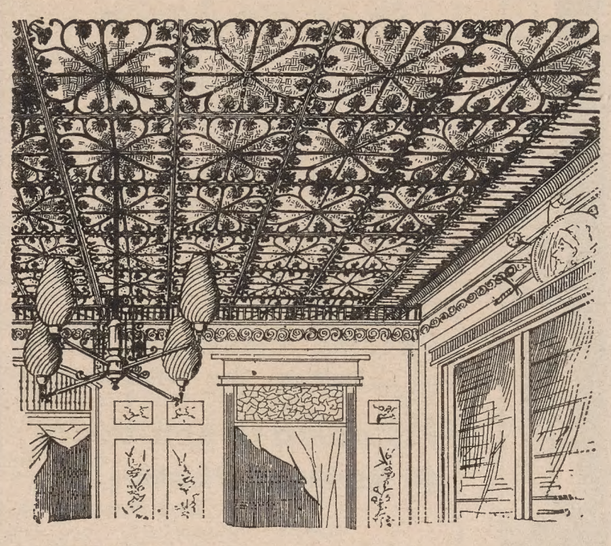

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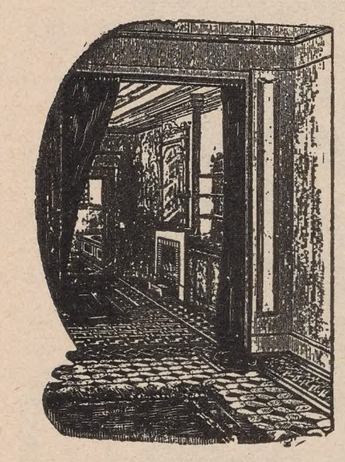

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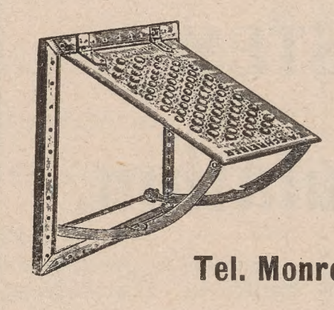

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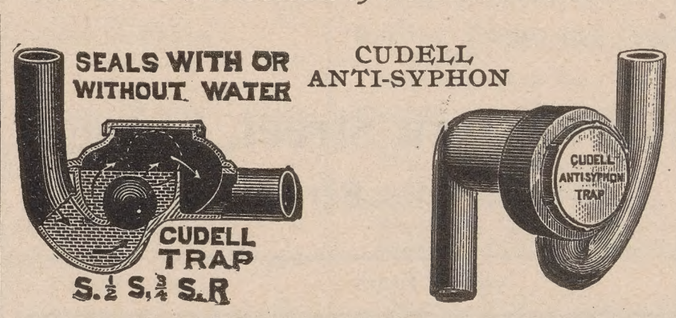

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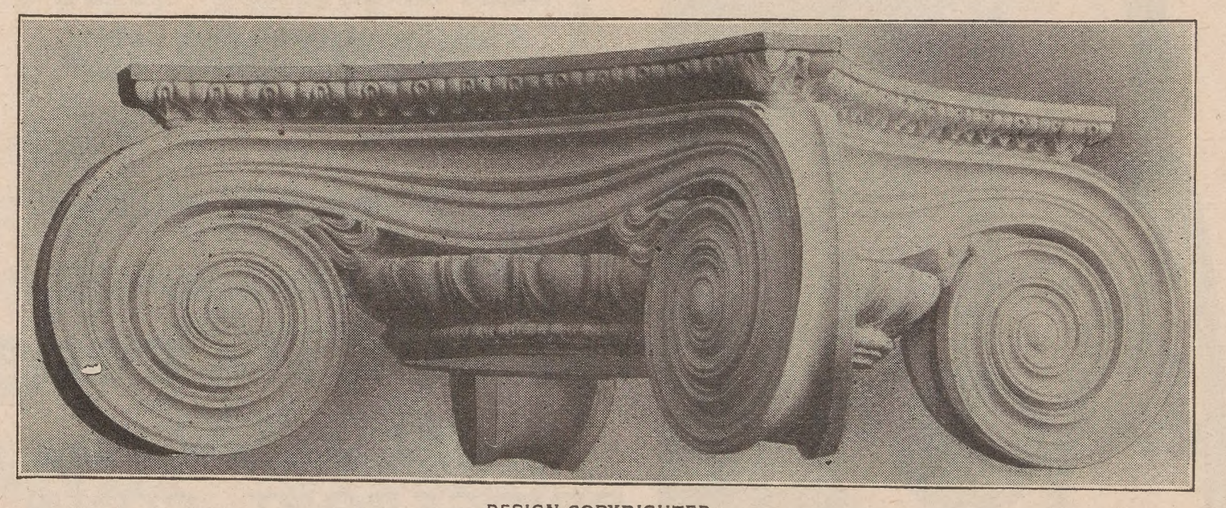

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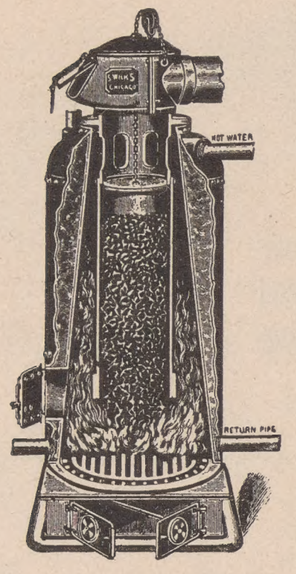

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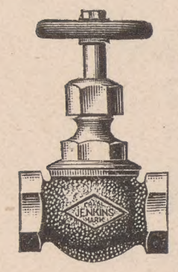

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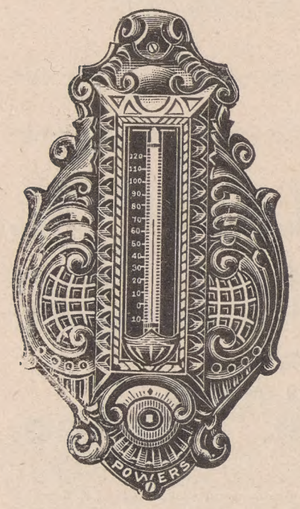

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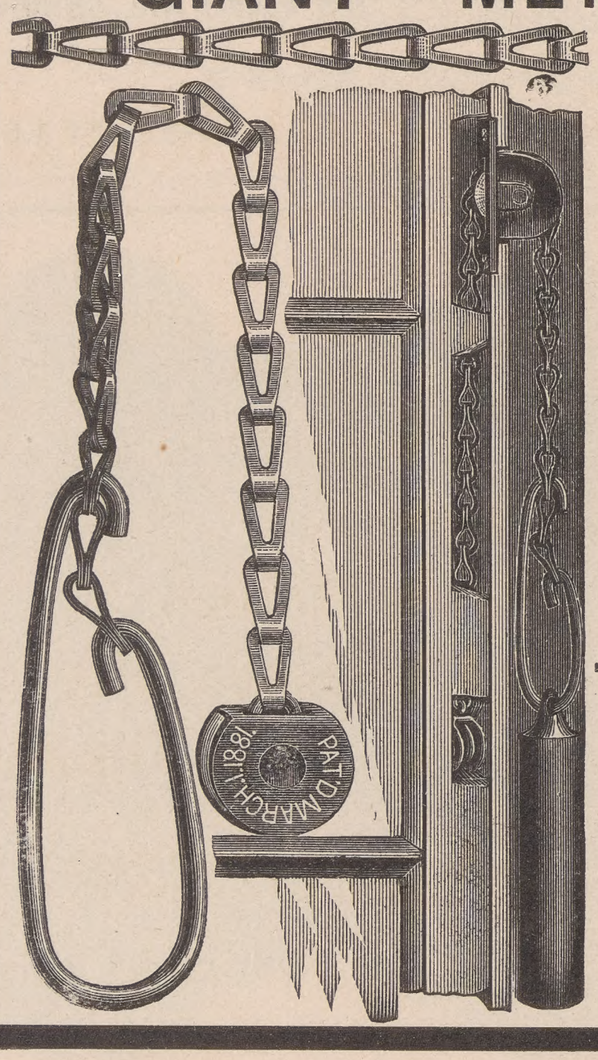

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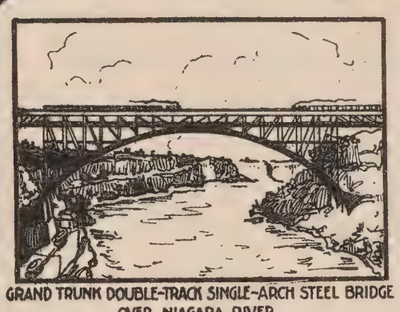

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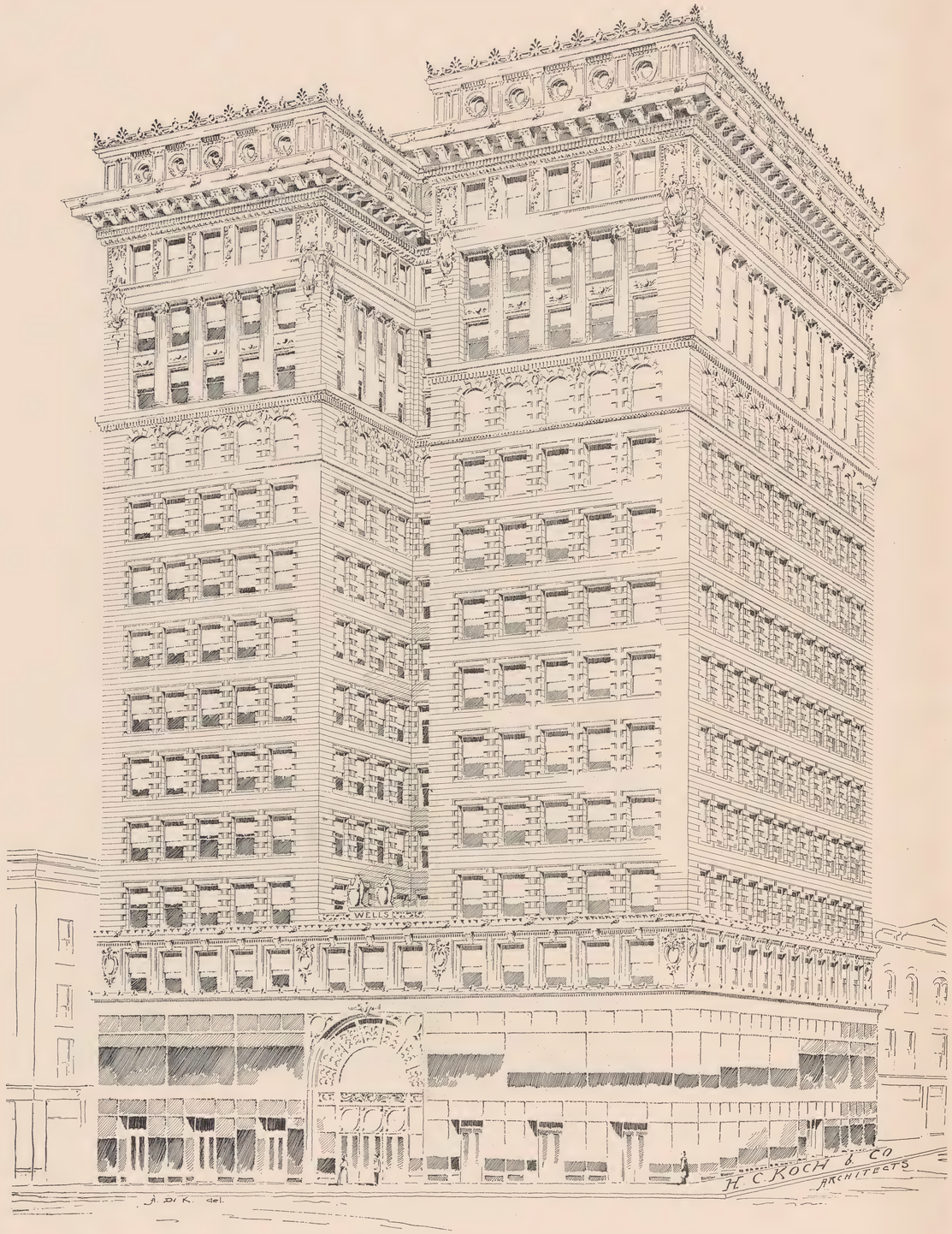

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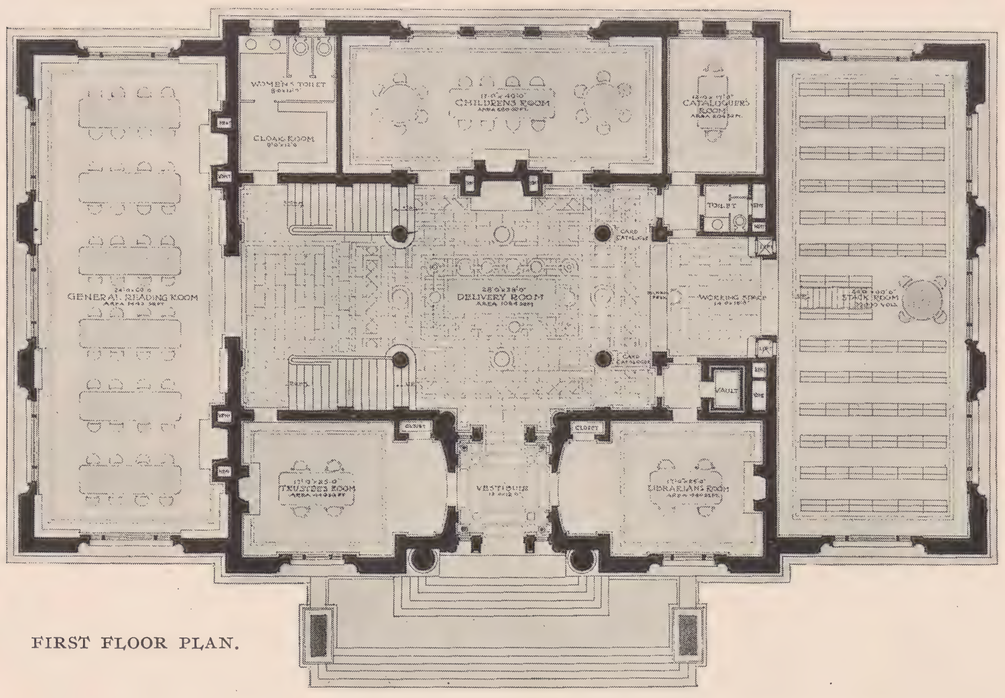

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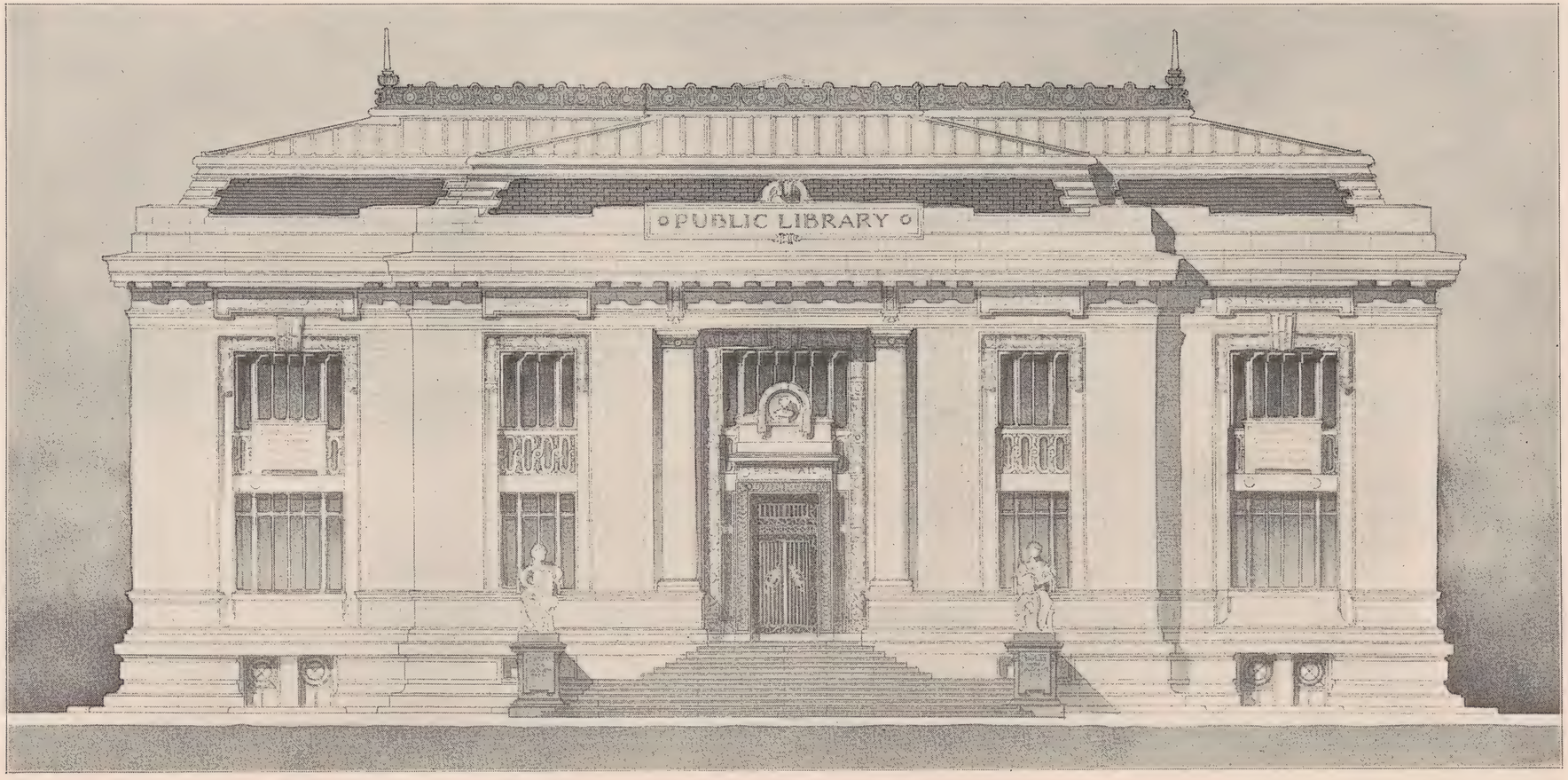

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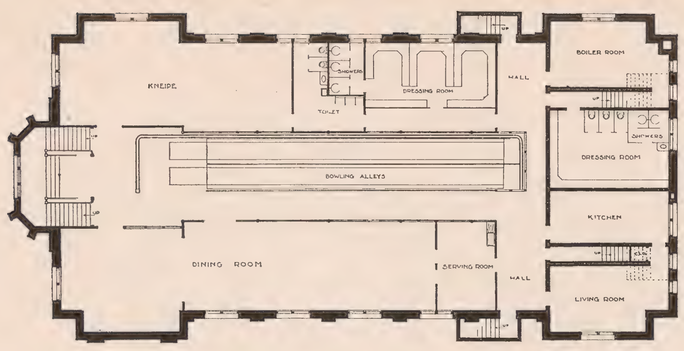

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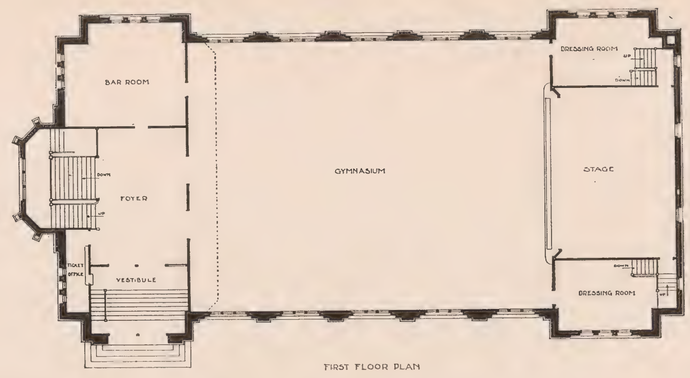

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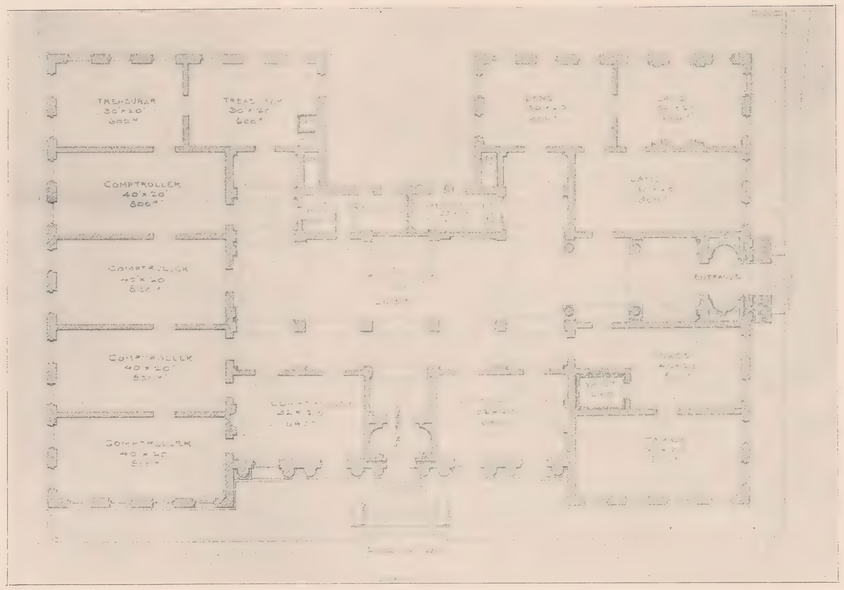

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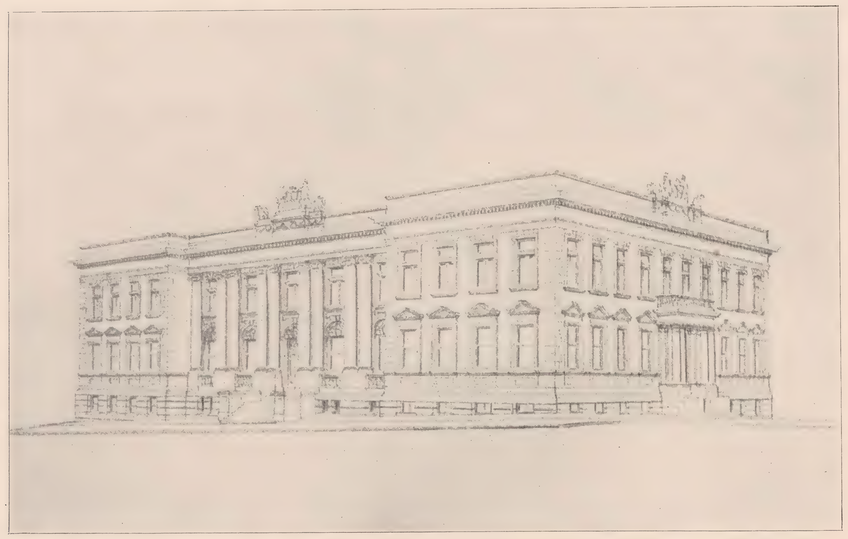

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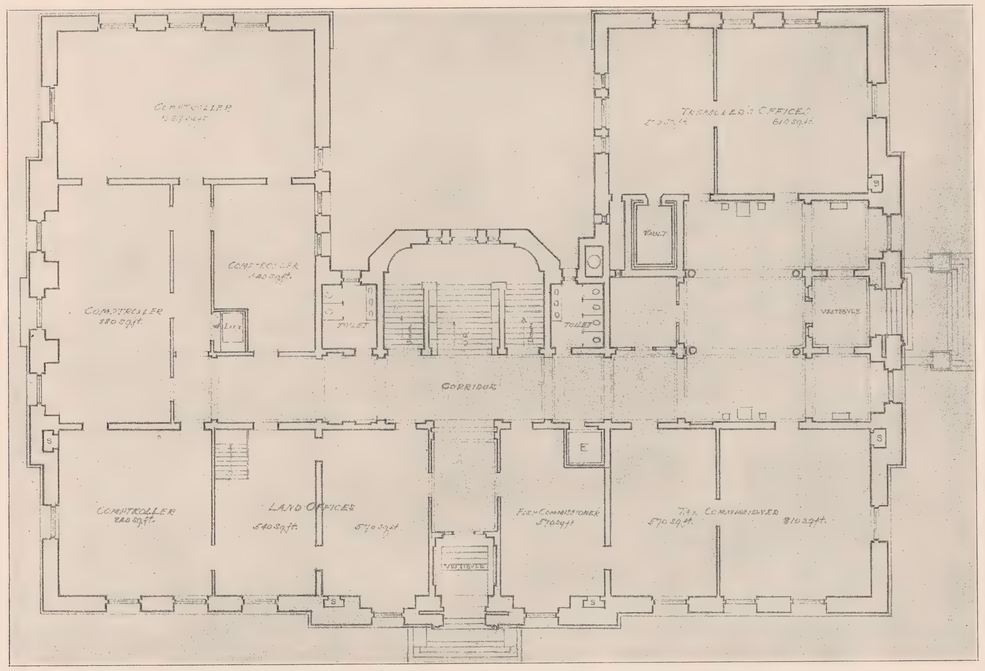

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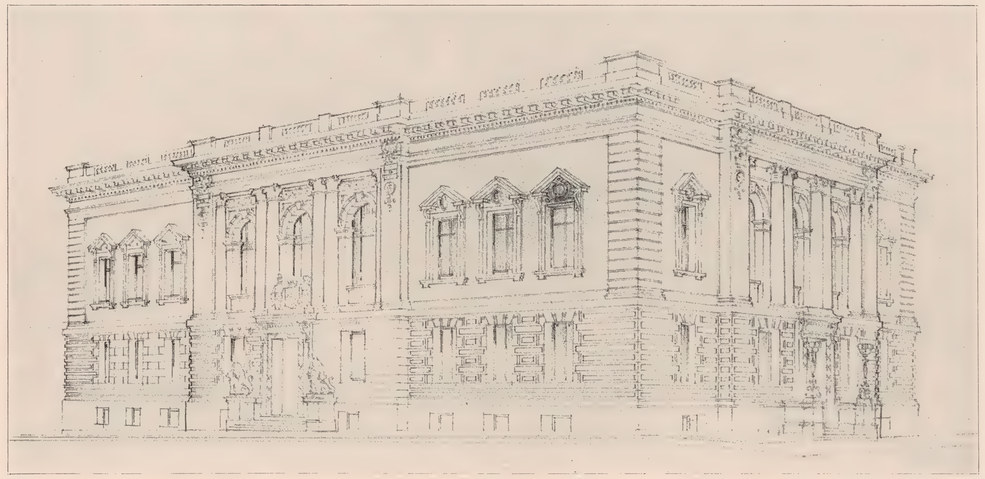

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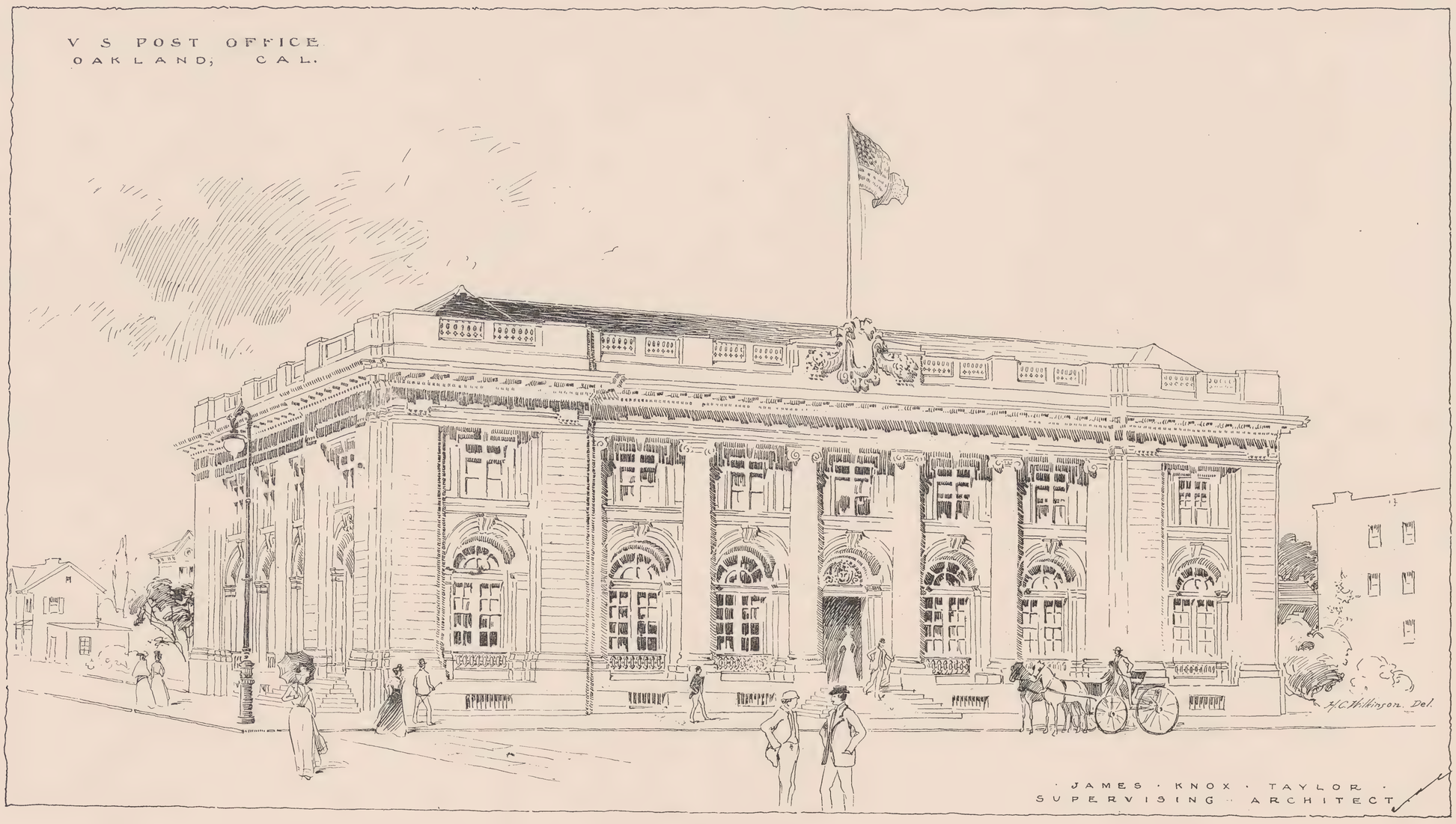

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THE INLAND ARCHITECT AND NEWS RECORD

Vol. XXXVII APRIL, 1901. No. 3

A Monthly Journal Devoted to

ARCHITECTURE,

CONSTRUCTION, DECORATION AND FURNISHING

IN THE WEST.

PUBLISHED BY THE INLAND PUBLISHING CO.,
609-610 MANHATTAN BUILDING, CHICAGO, ILL.

L. MULLER, Jr., Manager. ROBERT CRAIK McLEAN, Editor.

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TERMS: Regular number, $5 a year; Photogravure edition, $10 a year. Single copies, Regular number, 50c.; Photogravure edition (including 7 photogravures), $1. Advance payment required.

The columns and illustration pages of THE INLAND ARCHITECT are open to all alike, merit and availability only determining what shall be published. Contributions appropriate to its pages are always desired.

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Disaster to English Labor through Unions.

An article recently contributed by an English architect to the *Nineteenth Century Magazine* upon the threatened commercial decline of England through the harmful domination of the labor unions, sounds singularly like a "tale of two cities," the other being Chicago. But bad as this has been in Chicago, in England the condition is more disastrous. According to the writer, the English workman has steadily forced up wages and decreased hours until while nominally he works eight hours a day, in practice this is hardly four of honest labor. But the most serious curtailment of work is found in the rule limiting a man's work, which, with bricklayers, where one could easily lay 1,200 bricks, union rules forbid his laying more than 500. This system extends throughout the trades. Not only does the unreasoning rules of the union sap the vitality of all labor, but it, as should be evident to them, reacts upon the workman himself. In this country labor conditions have not reached this stage, but it is the logical result of the practices in vogue among labor unions in Chicago, and by refusing to allow a man to do an honest day's work for an honest day's pay, the entire building industry is undermined and the workman is sure to be the first and the most seriously injured in the collapse.

Advisory Commission for Washington Appointed.

The prompt response of the Congress of the United States to the demand by artists and intelligent public alike for the appointment of an expert commission in whose charge the future of the city of Washington be placed, indicates that our boasted culture is a practical reality. But it was the fable of the last straw repeated. The people of the United States had watched the continued desecration of the Capital City by the vandal hands of ignorance and cupidity, and year by year passing from the beautiful outlines established by L'Enfant and Hoban. They had seen public buildings erected by stonecutters on lots sold by the real estate agents without any regard for the capability of the architect or appropriate location, until the visitor to Washington wondered if all the real designers had died fifty years ago. At last an army officer with the aid of a draftsman and some political influence, got up a plan for the extension of the White House, and had even the temerity to exhibit it in plaster and ask for its adoption. Then came the time to act, and the American Institute of Architects did so promptly. Interesting the coöperation of some twenty-eight kindred societies and aided by the public, the strong protest of the Institute was effective. The necessity and value of this action can be seen when one realizes that this so-called plan of extension not only meant the total destruction of one of our best landmarks of the beginning of the nation's history, but would in every way contradict and stultify our claim to architectural and art progress before the world. This progress has been rapid, but has with all its vagaries been great. The establishment of this commission not only saves the capital city from further vandalism, but raises in every way the status of architectural art in the United States. In the appointment of D. H. Burnham, C. F. McKim and Frederick Law Olmstead as commissioners, the future of Washington is safe.

THE PARIS EXPOSITION.

BY F. W. FITZPATRICK, ARCHITECT.

THE great Exposition boomed its last cannon, turned off the lights after its last grand illumination, and closed its gates in one of Paris' own November, drizzly, raw nights, on November 12 last, as the clocks struck twelve. Well, it's all over with now. And what have we learned from it? They tell us that fifty millions of people entered those gates since they were first opened last April (sometimes at the rate of six hundred thousand a day), twice as many visitors as had the Exposition of '89. We are informed that the sum of $27,000,000 was expended in getting this great Exposition into presentable shape, and that, on the whole, the affair has been most successful. A satisfactory number of neighbors and Americans have left their millions of francs behind and every one is happy, barring a few ticket speculators and some unfortunate *concessionaires* who builded more, if not better, than they could pay for.

There was much wonderful machinery, an almost overwhelming array of pictures, some magnificent works of art and beautiful in conception, others exceedingly lugubrious, flighty, absinthy, in fact, but all marvels of technic and well worthy of "Oh mys!" "Ahs!" and "Isn't it too sweetly lovelys?" one heard before them in a dozen different languages. And there were the same naked women one has seen so often before, done in white marble and in bronze, and said to portray art, commerce, virtue, vice, arctic exploration and everything else under the sun—you read it all upon the labels. Besides all this, there were flowers, myriads of them, nature's splendid adornment; and then there were costumes, only a little less beautiful, made by the hand of man. There were carriages and furniture of all ages, and books and the thousands of other things of which one only preserves a mixed-up sort of kaleidoscopic impression. But all these things, or very nearly all, were in buildings, and after all, they are what one remembers best; *they* are what impressed you most, and their memory will remain long after you've forgotten all else you saw.

THE UNITED STATES BUILDING AT THE PARIS EXPOSITION.

You think of them often, you see them pictured time and again and everywhere, and they are brought back to you so vividly that very soon the recollections you retain of the Exposition will simmer down to those buildings. You remember the general *coups d'œil* you got from this or that point, the first impression you received as you crossed the Bridge of Jena, or as you viewed that magnificent panorama from the gallery of the Eiffel Tower. But it all resolved itself into an architectural exposition, nevertheless. So did the World's Fair of '93, and so did that other Paris Exposition of '89, though to a much lesser degree. And so will all future expositions.

That being the case, let us talk it over from an architectural point of view—naturally the most interesting to me, an architect—and see what its lessons have been, the architectural lessons of the great Universal Exposition of 1900, at Paris, the art center of modern times.

To reverse the usual order of things and make a résumé first, before saying what we may have to say in detail, I think the conclusions we are compelled to come to can but add to our national vanity, our conceit, if you wish. And that conceit is justifiable; it needs no excuses.

Comparison, after all, is our sole means of judging of relative merits. To compare these French efforts artward of 1900 to the American efforts in the same direction in 1893, is therefore perfectly fair. And no man, unless he be blindly prejudiced, can for a moment maintain that in any architectural respect this group of French buildings was in any way worthy of ranking with the American group of '93.

Mark you, I refer to the French Exposition buildings proper, not to the buildings of different countries, the "Palaces of Nations." These latter, in most cases, were splendid specimens of national and typical architectural forms. The Italian, Spanish, German, Flemish and Chinese, nearly all were most interesting, both from the artistic and the historical points of view. Among notable exceptions to this rule, however, we must count, and I say it with deep regret, the American building. If that hideous thing typified and was a fair example of what we do in this country,

then should we hide our heads in very shame, rather than to indulge in any clapping of wings and crowing performance as I have started out to do.

But it was not a representative effort. I can not account for it. Let us attribute it to one of those official mistakes or favors that are bound to happen sometimes. And while we are at it we might as well attribute the poor showing the French architects made to some such cause as well, for there are capable, brilliant architects still alive in France, only they must not have been in favor with the powers that were in this particular instance.

Referring again to the American building, the most charitable thing we can imagine in accounting for it is that the distinguished architects who had it in charge must have been exceedingly busy upon more profitable work at that time, and left the designing of this affair to some student or office boy, who has given us proportions, a theme and composition ill chosen, meaningless and childish, and crowned it with a dome whose only conspicuous competitor for exaggerated stiltiness and general ugliness we have seen in this country — and thank heaven that dome has disappeared — was the one that surmounted the Illinois State building at the World's Fair.

In '93 we saw in general grouping a lot of grand buildings, classic in form, correct in detail, well studied, logical, stately, imposing not only by their size but more particularly even by their inherent beauty. It was indeed a "dream city." Nowhere, at no time that history has any record of, was there ever grouped together so perfect and impressive an array of structures. And all about them was carried out, on the same magnificent scale and key, the water effects, the bridges, all. Yes, it was the very apotheosizing of art. The mind of man can not imagine a grander scale, a more superb grouping or a fuller realization of the highest flights of architectural aspiration.

Who will say as much for the Exposition of 1900?

Talking about the World's Fair brings to mind, and I wish to add here, that too much honor can never be given to the one man, Daniel H. Burnham, who made all this possible. He was in a position to selfishly attempt to design, or at least control the designing, of all those buildings himself — a task too great for any one intellect, however brilliant — but for the greater good he forgot self and called upon the leading men of the country to share the honors. That he succeeded in keeping a dozen architects together, working upon the one great problem, yet each infusing an individuality into the especial part assigned him, while keeping to the general outline and massing agreed to by all, without clash and with such splendid results, redounds, of course, to the glory of each one concerned, but proves most conclusively, to any one who knows how fussy architects are, that Mr. Burnham's executive capacity is such as to fit him most admirably for the Presidency of the United States, or for a more trying ordeal even, if such there be here below.

Of course, there were little blots here and there, but mighty few. The aforementioned Illinois State building and the United States Government building were the darkest blurs. The latter building was designed (?) under the old régime in the Supervising Architect's office, when all plans were ready-made and cut off the one roll, so many yards of them per building. A condition that, hallelujah! no longer obtains. The buildings turned out by that office during the past four years are among the best that have been done in the country.

Two other buildings there were that stood in perhaps violent contrast to the general scheme, yet they were handled so cleverly that their very contrast completed a harmony. The Fisheries building, by Mr. Cobb, and the Transportation building, by Mr. Sullivan — the one picturesquely and decidedly piscatorially Romanesque, successful, interesting; and the other a medley of East Indian and other things, brilliant in color (can you ever forget that golden archway by moonlight?), aggressively bold and attractive, almost wanton, certainly Sullivanesque, but yet, not fully up to the standard Mr. Sullivan has established. For undoubtedly he stands forth today the one conspicuous example of a man who has cut absolutely loose from all customary forms and precedents and merely decorates in brick and terra-cotta, and most artistically, too, the steel frame of what is at once recognized as a steel building; he frankly shows you what the building is, the rest of us still try to beguile you into believing that these spindly steel giants are massive masonry structures.

But let us back to the Paris Exposition. Why was not as artistic, as beautiful a composition, a grouping of buildings as possible there as at Chicago? You will hear that there were old buildings to contend with, a more confined space to work in, existing conditions that had to be adjusted to that could not be removed. They will tell you that it was entirely unlike at Chicago, where one had all outdoors to work in and could have lakes, rivers, forests and hills to play with just where one wanted them. It was a different problem, I grant you, but its solution was a bungle; there is absolutely no excuse for the result.

The condition that suggests the excuse was the one redeeming feature of the Exposition. The very fact that there *were* old buildings, the Paris of another period, with all its charms, its sacred landmarks, its majestic monuments of long ago, and artistic treasures of all times, and all the city in gala dress made the visit well worth while, if the Exposition buildings *per se* did not. Paris was indeed the principal feature of the Exposition.

All the conditions, say some, made it imperative that this display be made festive, lighter in vein than was ours of '93.

Granted, too. But to be festive one need not be idiotic. The buildings of the Exposition proper made one think of some of the architecture one sees in the stage effects of very second-class comic opera, outlandish, impossible. Now, supposing a friend of yours, a staid, dignified old gentleman of seventy or more, a president of some university for instance, suddenly takes a turn for the worse and marries some gay butterfly blonde of twenty, a concert-hall singer or other festive maid. Well, if you see them start off some day in a gorgeous turn-out, running-gear painted red, body yellow, coachman in scarlet and gold, and white horses, you'll simply shrug your shoulders and smile and say, "Poor Johnson!" or whatever his name may be. But supposing you see him in a pink carriage, with the wheels made square and the horses painted blue and hitched heads toward the carriage, you'll certainly realize that Johnson has gone daft, and you'll consult with friends and take steps to put him away somewhere where he will be safe.

I suppose it is heterodoxy and a crime against high heaven, treason, yes, *lèse majesté,* to say so, but that is my idea of the architects of the French Exposition. They have gone daft.

Under Garnier, Bénard and men of their caliber, French Renaissance was handled in a masterly way, and, goodness knows, it was ornate and festive enough for any one. But this new batch, the men to whom these buildings were confided at least, were not satisfied with what their fathers did; they wished to excel, they craved novelty, something that had never even been thought of before, more color, more *mouvement* and — they got it.

We all know what the French schools have done for art, what they have done for all of us who studied in them, and we are grateful to them, but for this new set, the exponents of the *outré,* the extremes, even though they are the results of those schools; aye, and for those schools themselves, if that is what they are now turning out, there can be no respect, esteem, only pity. They mark almost the turning point of a decadent people. For, thank God, the French people have often gone down, down; there have been Louis XIV. and Rococo periods, but, soon after, there were revolutions and renaissances in every sense. Virility has again taken the helm and good taste and common sense have lighted the way for a chastened people.

Today, if we judge by the Exposition, senility must indeed be at the helm. French architecture has reached the blue-horse and square-wheeled stage.

They prate of conditions compelling this and that. What more magnificent opportunities were ever offered an architect than were in those two Palaces of Art, on the Grand Avenue Nicholas II.? And what miserable fizzles were made of them!

Take the Grand Palace. The peristyle is only very ordinary; the principal mass or main entrance is weak and meaningless; the corners pitiably trifling, boyish, and the sky-line and top-knob *hors de concours* for ugliness. What did the conditions have to do with it? Why not call it by its right name and say it was incapacity? Imagine, if you can, that simple, chaste, masterpiece of poor Atwood's, the Fine Arts building at the World's Fair, than which, by the way, no better example, ancient or modern, of true classic form and purity was ever shown man. This may seem the exaggerated praise by an enthusiast, a friend, but you will find in time that cold, discriminating history will pay Atwood the same tribute; but it takes time for history to get around to it. Imagine that building, I say, placed where stood, or stands, the Grand Palace, and methinks you would admit the conditions

would not have suffered any violent wrenching by the juxtaposition, nor would they have been inappropriate settings for that perfect gem. Indeed, the conditions about those two buildings of '93 and 1900 were remarkably similar.

The call was for something festive? Very well. Surely the Château d'Eau was festive enough. It was the most successful building there because there was but little architecture about it; and that little, we must also say, was rather recklessly handled. But in general it was merely decorative; there were pleasing lines, a stage setting for aqua pyrotechnic effects, and no one would take it for aught else. It eminently fulfilled its purpose and did it artistically.

What I raise my feeble voice in prayerful protest against is that where purely decorative purposes were not to be served and where there was an attempt at architectural effects, that the latter should be so cruelly butchered as they were. Witness the proportions, the lines, the distortions, the antics perpetrated in that Pavilion of French Manufactures, for instance, a façade of breadth enough to have made something architecturally good, as its architect very evidently started out to do, but got into evil ways before he was half through. Note the wasted opportunities shown us in the Palace of Mechanical Industries, the Palace of Decorative Art, and the Liberal Arts building, not to mention the startling surprises reserved for us in that most extraordinary nightmare, the quasi-Franco-Moorish and what-not Army and Navy building. In them all there is a something that shows the good early training of the men, some detail, a part or outline that almost redeems the rest, but that part or detail seems to have but crept in, the designers were ashamed of their better feelings, suppressed them and succeeded in, as the boys say, "getting gay" and spoiling even that one poor solitary feature.

Not one of that entire group of Exposition buildings, which may in any sense be termed architectural, is fit to be set alongside of the World's Fair examples that we so fondly and proudly cherish in our memory. The conditions and surroundings, forsooth! Not one of those buildings merited to be looked at the same day that one gazed upon grand old Notre Dame, the Madeleine, the Panthéon, the Grand Opera, the Trocadero or any one of the buildings of Old Paris. And for that matter, and apart of any historical interest or novelty we might expect, not one of those buildings merited the attention that was so well deserved by nearly every one of the buildings along the Avenue of All Nations.

Far more successful were the buildings of that group, the Exposition proper, that, like the Château d'Eau, where hardly any trace of architectural composition could be found, the merely decorative structures, put up for a day, as it were, festive, frankly but a temporary shelter against the weather, a medium to carry color and bunting by day and a framework for most fantastic and beautiful lighting by night. Take the grand entrance, for instance. At first sight, one immediately attributed it to morphine, cigarettes or absinthe. It certainly was a most extraordinary affair. Yet there was no slaughter of architecture about it. You realized it was merely something to emphasize the entry and a great frame necessary to the production of the weird but singularly attractive lighting by night. The fronts of the Palaces of Horticulture were particularly good; strictly ornamental screens, of glass and of metal, 'twixt inside and outside, dainty, clever, they made one think of some of our own Sullivanesque creations. But, horrors! when one got a broadside view of those two buildings, what a shock! The first impression, and one that lingers with me still, was that they were intended to represent some prehistoric, monstrous structural mammals, blessed with an abnormal number and development of chylaqueous reservoirs, and capable of performing the duties of wet-nurse to every building upon the grounds.

As a whole, viewed from a distance, and particularly from a considerable height, the ensemble was magnificent. They assuredly succeeded most admirably in giving one a grand spectacle; the subdued tones of the old buildings beyond, as a background, the winding river, the brilliancy of color and blending of forms of the Exposition buildings, a dab of green nature here and there, the stir and life all about was worth the whole price of admission, ocean trip and all. And by night it was indeed fairy-land. Why, even Eiffel's ghastly tall spire seemed beautiful by night. But halt! Go no nearer if you seek architectural perfection, detailed visions of beauty; if you have come from afar to where they make architects, expecting great things, you will be most sadly disappointed, for those buildings — I always refer to the main Exposition proper — offer not one example of even ordinary architectural beauty or skilful handling, let alone architectural perfection. And I verily believe the present generation of French architects did their best there, too. They have forgotten nearly all the lessons of their youth, they have degenerated, they have groped about so long for something new that they have grown morbid and indulged in such artistic riot and debaucheries that we are forced to believe they have reached a sort of Sodom and Gomorrah stage in architecture.

Fantastic, weird wall-paper designers, yes; but architects, no.

And, by the way, while you were in Paris, and as you passed through England, and perhaps took a jaunt into Germany, Italy and Austria, did you see any buildings recently erected or now in course of erection, that impressed you as being better fitted for their particular purposes, commercial, educational or domestic, than are our American buildings of today? Better fitted or, yes, I will even go a step farther and say, more really artistic? Did you anywhere find more luxurious hotels, more comforts, more elegance, more cheerful surroundings and more conveniences than you have to put up with in our second-rate hotels; or, for that matter, did you see anything in the hotel line anywhere that could compare favorably to what we are accustomed to in our lesser cities? If you visited friends abroad and went into many private houses, what do you think of their domestic architecture? Did it not make you weep? Did you not long for the cozy sitting-rooms, the ample bathrooms, the dainty and cheerful exteriors, the flesh-pots, as it were, of American homes? All those things are just as essentially part of architecture and an architect's business to give you, wherever you may be, when you employ him, as is the proportioning of a column, the massing of a great monumental composition. How well he succeeds in doing *all* these things is the measure of his capacity. Do your American architects balance up pretty well with their ultra-æsthetic French and foreign cousins in that measure?

Some one will say, "Oh, there's another dyspeptic growler, who sees nothing to admire save in his own little *entourage,* a hypercritic, rabidly patriotic sorehead." I am not several of those things; my digestion is perfect and my humor generally most seraphic. There was much to admire and to enthuse over at Paris, but not the architecture of the Exposition buildings. I have long worshiped at the shrine of French art, looking up to it as almost to the unattainable, and to their architects as teachers, masters *par excellence.* But this Exposition and the more recent buildings in Paris came as a thunderclap out of a clear sky, and make one feel like girding up his loins and going into the temple with a fine, large, well-knotted cat-o'-nine-tails. Those buildings are so glaringly of a decadent period in that art that we are forced to recognize, and perhaps not against our will — for Americans are not overly modest — that, as is so often the case, the pupils, men of a young and virile nation, have caught up with and far outclassed their quondam masters and teachers, men of a less vigorous but an ancient civilization and culture, in the application of the results of that very culture.

I have waited patiently for some gray-beard of our profession to tell us frankly what he thought of this most recent contribution to international exposition architecture (we have heard so very much gush over it), some wise man before whom we could bow our heads and say, "Yea, verily!" but none such has spoken.

I, an unbridled youth, may have said too much, though it be not one whit more acrid than I, usually a most placid and easily pleased youth, feel at the present writing. Furthermore, I will venture the assertion that, outside of the little Paris clique and a few exotics hereabout, ninety-nine of every hundred architects, French, English, continental, as well as American, who visited those buildings, or who have seen them illustrated, feel exactly as I do about them, though they may not care to express themselves so — frankly. And, still further, I firmly believe that the laymen, who have ever given architecture the slightest study or thought, people of refined tastes for whom the tinsel and spangles and blare and cheap gilding of a circus-van style in art has but little attraction, also feel just that way — sadly disappointed.

If I am wrong, if there was any valid excuse for the freaky things those architects indulged in about the buildings I have touched upon, and if, as a general proposition, those buildings were not cruelly disappointing to the great mass of cultured people who saw them, then I will be glad indeed if some kind brother will take me by the hand and gently lead me back into the right path, and with his help, mayhap, will I unlearn the lesson I imagined the great Paris Exposition had taught me.

THE MONUMENTAL GROUPING OF GOVERNMENT BUILDINGS IN WASHINGTON.*

BY EDGAR V. SEELER, F. A. I. A.

WHILE the selection and development of the site of the national capital are familiar history, there are certain conditions, certain principles in connection therewith which can not be too distinctly kept in mind. These have been lost to view at periods of the country's history, and at this present moment are threatened with lack of proper consideration. The location of the capital on the banks of the Potomac was, it is true, a political compromise. It might, in so far as centrality is concerned, that is to say, centrality removed from undue influence over measures of Government by the commercial forces of the newly united provinces, and, in so far as natural topography, possibilities of architecture and landscape, desirability as a residential city, are concerned, have been located in a hundred other places. In fact, only a year before the act of Congress of July 10, 1790, which determined upon the banks of the Potomac by a majority of three, there had been a majority of twelve in favor of the Delaware. A bill providing for a site on the Susquehanna had previously passed the House. This was amended by the Senate so that Germantown should be substituted, but the bill was finally lost. While the present location was a compromise, yet General Washington had been in favor of it from the beginning, and his wishes had great influence with the Northern States. Washington's interest in the project was therefore assured in the greatest possible degree, and with him that of the broad minds of the time, who had been his intimates in the Revolution and the earliest days of the republic. To him was committed the task of fixing the precise site for the new city and appointing commissioners for erecting it. From this moment he is in reality the chief actor in the founding of the capital, with the assistance of Jefferson and Madison. Washington knew the Potomac from boyhood, and his judgment now strengthened his sentiment in the choice of the plain between the Potomac and the eastern branch, just below Georgetown, in an amphitheater of hills, with the picturesque river disappearing in both directions between the woodlands. It was he, too, who selected the engineer to lay out the city, Major Pierre Charles L'Enfant, a man who had had the advantage of France's best military education, clever in fortifications, broad of vision, foreseeing not a struggling handful of patriots sparsely scattered through thirteen States, but a mighty republic of fifty States and five hundred millions of people. He investigated every point of the territory; he studied the problem from the stream and the adjacent commanding hills; he remembered the great parks of France; he secured from Jefferson maps of all the great cities of the world. And from them all, yet independently of them all, he evolved the plan which today stands unique in magnificent possibilities. The President saw and understood. That plan is even more familiar than the national history leading up to it.

This, then, is a site selected after much thought and conscientious deliberation by Washington, a plan developed under his guidance bv the foremost engineer of the time; the whole endorsed by Jefferson and Madison and the territorial commissioners. A plan which, in its essential scheme, the intervening years have stamped with their approval. And yet a plan which was practically forgotten after the Capitol and the White House were located until within a few years.

It seems that we Americans awake to the artistic possibilities around us only when they have been sacrificed. We turn our political management over to men who must, in the nature of things, have a deciding voice in a thousand and one matters outside of law, of which they have no knowledge and can not be expected to have any knowledge; about which they seek and are willing to accept instruction, and we give them none. The surgeons and physicians of the country awoke to this years ago, organized and made their voices felt in the land. We architects are just beginning to see that there is a mission for our organization, and some spasmodic endeavors have been made to carry out that mission.

Now, if ever, is the supreme opportunity for the national organization of the architects of the United States to speak and advise concerning the national capital of the United States.

Fortunately, the status of matters architectural in the city of Washington is such that while much has been thus far lost, projects pending for the development of the city are of such an important nature that if properly carried out the city's monumental character may be established forever. The converse is, unfortunately, quite as true, that if improperly carried out, the city's monumental character may be sacrificed beyond redemption.

Stated categorically, the main monumental features of L'Enfant's plan are:

I. The dominance of the Federal building.

II. An avenue of direct communication between the Capitol and the White House.

III. The development toward the westward of the east and west axis of the Capitol in conjunction with the north and south axis of the White House.

In what way have these features been forgotten or tampered with by the constructions of the present century? The mass of the Capitol building with its crowning dome, set upon the highest point of the territory, is such that it would seem almost impossible to take from it its overwhelming importance. The center of eight broad, radiating avenues, it would seem that these vistas, specially planned for the purpose, would be forever most jealously guarded. One of the great satisfactions of the city — a pleasure that never ceases — is the view of the Capitol down Maryland avenue. Another pleasing view, although the lack of development is felt, is that from the Mall. But by a strange irony of fate, the views from the White House or along Pennsylvania avenue are cut off in one instance and frightfully injured in the other. Proper reflection should have prevented the interruption of the vista from the White House by the Treasury building. If the Treasury building were less dignified, if it did not form with the War, State and Navy buildings a balanced composition about the White House, it would be an unpardonable sin. But the judgment that allowed any man, architect or otherwise, to raise a dome in the immediate vicinity of the Capitol, and, moreover, to give to that dome an awkward line, inharmonious with the dome of the Capitol, and, still further, to color and gild it so that it loudly announces its presence to the detriment of the great central object of the city, that judgment can not be too severely criticized and censured. The Congressional Library would have worked out better in the general scheme if it had been one story lower; in any event, the dome should be suppressed even now.

What would be the feelings of Washington and L'Enfant — the men of broad mind, capable of grasping a great theme, capable of keeping it, and it alone, uppermost, to the suppression of all details — to find their first fundamental principle thus trifled with?

Pennsylvania avenue has to work out its own special purpose. It must necessarily be a great thoroughfare, the street of hotels, banks, newspapers, theaters, stores — all the buildings that go to make up the civil life of the city. From the Treasury building to the southeast the Capitol is ever visible, and while we may not all agree as to the architectural excellence of the structures along the course of Pennsylvania avenue, we must admit that the tendency is toward improvement. There should be, however, strict legislation as to the height and cornice lines, the style and color of all buildings along it.

It is a pity that the view of the Executive Mansion from Pennsylvania avenue is forever cut off. The first plan must have contemplated for the Executive building a single structure or a group whose center was to be a dome complementary to that of the Capitol. In the reconstruction of the White House, this idea may yet be realized, for the public and governmental uses of the Executive Mansion are fast outstripping the private or residential needs of the President. In fact, it might be wiser to divorce the two entirely, and, as has been suggested, move the residence of the President and his family to some other and less public point.

While the attitude to be assumed by the architects of the country with respect to the Capitol and to Pennsylvania avenue as parts of L'Enfant's scheme is one of conservative suggestion tending to render any further injury impossible, the attitude toward the third salient feature of the original plan should be definite and aggressive.

In the report of the committee appointed "to provide for an appropriate national celebration of the establishment of the seat of Government in the District of Columbia," it was unanimously adopted in conjunction with the fixing of the date of the celebration for December, 1900, and certain exercises in the House and Senate, "that the enlargement of the Executive Mansion in harmony with its present style of architecture, and the construction of an avenue to be known as 'Centennial avenue' running from the Capitol grounds through the Mall to the Potomac river, be made features of the celebration." To show how entirely the third essential in the scheme of the city had been forgotten, it was mentioned in support of the report by one of the committee that, "Strange to say, upon looking at the maps which the committee had before it, it was seen that the original plan of Washington, as prepared by Major L'Enfant, provided for just such an avenue, public buildings to be erected on either side of the same." And this statement was made in the early part of the present year. Further evidence, if necessary, of the neglect of this principle through the century is found in the scattered and ill-organized placing of the various buildings along the Mall. The Medical and National Museums, the buildings of the Fish Commission, Smithsonian Institution, and the Bureau of Engraving, and the Agricultural building are not coördinated with each other, nor are they parts of any general scheme. The Medical Museum probably offends the worst; the unsightly rear of the building, irregular in outline, bad in color, and disfigured by fire-escapes, being directed toward the Mall.

The Washington Monument was to have been placed at the intersection of the axes of the Capitol and the White House. It is about one hundred feet south of the axis of the Capitol and five hundred feet to the east of the axis of the White House.

Of the permanency of the above structures, it may be ventured to say that the Smithsonian and the Monument are the only ones which must be accepted. The others will probably outgrow their present quarters and require entirely new structures. The Smithsonian may or may not be reconstructed.

The magnificent possibilities of a boulevard, such as the proposed "Centennial avenue," are almost without limit. The Avenue des Champs-Elysées, which resembles it most nearly, could not be compared to it for dignity, accessories of landscape, formal parking and sculpture. The buildings which line the Ring Strassen, in Vienna, form one of the most impressive groups in the

*Paper read before the thirty-seventh annual convention of the American Institute of Architects at Washington, December 15, 1900, and reproduced because of its historical résumé of the planning of that city by its founder and its bearing upon the work before the commission recently appointed to carry on the work.

world. Here we should have the advantage of straight axes and longer vistas.

It is unique, also, to have the possibility of continuing such a boulevard by a monumental bridge, for it is to be remembered, in this connection, that active steps have been taken toward the construction of a Memorial Bridge across the Potomac from the city to Arlington. Designs for a magnificent structure to cost some $4,000,000 have been submitted to the War Department, with recommendations looking to the adoption of one of them. The bridge as now contemplated is planned as a continuation of New York avenue, but there is no reason why it should not be combined with the boulevard.

Given the conditions as above outlined, two solutions are proposed by men who have given the subject consideration.

One looks to fixing the line of the avenue radially from the center of the Capitol dome to the proposed starting point of the new Memorial Bridge at the foot of New York avenue, near the old Observatory, and changing the direction of the bridge to conform to this line. This cuts the Mall obliquely, creates a number of irregular properties along its route, and locates certain new buildings on Fifteenth and Seventeenth streets, to the south of the White House.

In the other solution, the axis radiates from the same point and passes through the center of the Washington Monument. The line of the bridge is also changed to conform. This latter scheme is very nearly, but not quite, at right angles to the Capitol, but its nearer approximation to being so renders it, from an architectural standpoint, worthier than the former. It has in it the essentials of a monumental plan which the former fails to suggest in the slightest degree. Groups of fountains, statuary and monuments, rows of free standing columns and formal gardens lead from the foot of the Capitol, by bridges, across the steam railroad tracks and the streets where trolley cars run, to a grand circular colonnade surrounding the Monument, ample in diameter, with triumphal arches at the cardinal entrances. The plaza thus formed is intended as a reviewing ground for parades and other spectacular events. Beyond the Monument the boulevard would be continued in much the same way as that to the east, with a secondary center of interest near the starting of the bridge. The lines of B street North and B street South have been revised so as to be parallel to the axis of the scheme, and the sites for Government buildings located on them outside the Mall.

It may be urged against this, as against any similar scheme, that it means a vast outlay of money and tedious negotiations for property, the surrender by corporations of rights already granted them, and that it would take years in construction. But these are difficulties which must be met in all great improvements. They might have been already met in large part if the sums spent on Government buildings had been persistently spent in this one channel. But in any event, the Government of the United States is strong enough and rich enough to carry through a project which promises to place the national capital in the very first rank of the great cities of the world.

It is impossible, however, not to revert to the original intention of maintaining the axis of the Capitol and of maintaining it absolutely. The Washington Monument is off this axis; it is visibly so. Is it not better, therefore, to acknowledge it frankly? The boulevard at this point could still have a clear width of at least one hundred and fifty feet, and an architectural symmetry could be established with a center of minor interest on the north side of the boulevard.

The trolley roads which cross the Mall can all be depressed without difficulty and the boulevard carried across them by bridges, as the ground now rises to what would be the line of the boulevard. But the Pennsylvania Railroad tracks are a more serious problem. The desirable thing to do would be to move the station to the south side of B street South, thus doing away with the tracks altogether across the Mall. Failing that, and rather than continue the boulevard by an unsightly humped bridge at this point, the next best thing to do would be to depress the tracks as much as possible, have the actual starting point of the boulevard to the west of the tracks, and arrange driveways by means of raised bridges to the north and south of the boulevard, where the vista from any point to the west would not be disfigured.

The solution of the problem should certainly look to the reacquisition of the four blocks from Third to Fifth, between Pennsylvania and Missouri avenues, and between Maine and Maryland avenues. These are occupied at present by mean brick buildings, and should never have been sold by the Government.

The purchase of that great triangle of properties bounded by Sixth and Fifteenth streets, and by Pennsylvania avenue and B street North, is a question upon which a single individual should scarcely dare to give advice. There can be no doubt of the desirability of rehabilitating that section of the city, and as part of a monumental plan it would be invaluable.

It would seem, however, that the Mall in its present extent is wide enough to admit of the placing of buildings on its outer edge without materially reducing its function as a park, and the buildings thus disposed would be as easy, if not easier, of access one to another as in the second scheme.

The change of direction and starting point of the bridge may be objected to by the Government engineers, but it is defensible, architecturally, from the tremendous gain in importance to itself and to the boulevard by a combination of the two, and the start from a slightly lower level saves an extravagant amount of filling which would have to be done to make of New York avenue a proper approach. Moreover, a slight rise in the pavement of the bridge from the land to the monumental archway forming the piers of the draw would add to the impressiveness of both bridge and boulevard.

The most immediate hindrance to the proper carrying out of any such boulevard scheme is not the inability or the unwillingness of the Government to provide money for buildings and sites, but the lack of information on the part of those in whose power the selection of sites for new buildings lies.

As a very recent example, the proposed building for the Department of Justice, which is temporarily held in abeyance, is estimated to cost two and one-half millions, a large enough sum to pay for a handsome structure, but it is to be placed out of relation to any other building, built out to the property line, left without any setting, and liable to injury by the erection of anything on the adjoining properties that their owners may see fit to put there.

Those in authority require advice, and advice of that special nature which can only be given by those whose training and experience specially qualify them for it.

No department of the Government should be permitted to choose a site or decide upon a building without the advice and consent of expert counsellors. Through the Tarsney act, this has been accomplished in part in the Treasury Department. But when the monumental reconstruction of the city of Washington is to be considered, or, rather, when the prodigal is to be welcomed home and reset up in his father's house, the occasion is one which cries for the appointment of a special commission — a body of individual workers, with power and means to employ the best talent in whatsoever lines their judgment shall direct, whose decision shall command the respect of the nation and shall be authoritative by reason of their feasibility and their artistic and practical excellence.

In addition to the direct representatives of the Government and of the city of Washington, such a commission should be composed preëminently and in a majority of the most distinguished architects, sculptors and engineers of the country. While the work of such a commission could best be done by a few, and would necessarily devolve upon a few, the commission should be as thoroughly representative as it is possible to make it.

The project of this boulevard lays a responsibility upon your shoulders and upon mine, come from whatever State or Territory we may. By its results, Americans will be stamped as men of taste, intellect and culture, or as men who neither know nor care.

On the one hand, there is the making of the greatest monumental city in the world; on the other, there is the sacrifice of our birthright, the undoing of all that Washington, Jefferson and Madison made possible, and the sealing forever of the architectural future of the nation's capital. The American Institute of Architects should pledge itself to the formation of a commission, powerful, authoritative and beyond question in its judgments, in whose hands the artistic development of the city of Washington shall be placed, and whose decisions shall be without recourse.

GENERAL CONTRACTS.

WITH many architects the subject of individual versus general contracts has been one of close study and more or less experiment, and in gathering data upon the subject it has appeared that, while the letting of contracts to one general contractor has saved much labor, it does not really lessen the responsibility of the architect. It is in this line of investigation that the following abstract from a paper on the subject, contributed by a contractor to the *Construction News,* of Chicago, is reproduced, in which the contractor, in answer to a like comment by an architect, makes the following well-considered suggestions to the architectural profession:

"The suggestion I want to make refers directly to the architect, and it is this: That the architect increase his functions to include those exercised by the general contractor, and adjust his scale of commissions to include this extra service, adding to his establishment a department of superintendence, supervision and control in the hands of a man or men properly qualified for this work. There are some men operating today as general contractors to the great discomfort of all concerned, and who only succeed (beyond hopelessly complicating the conduct of whatever contracts they secure), in making a mere living. These men might render excellent service and earn a comfortable and honest living in such a field. The architect, while at first looking askance at the enlargement of his field of activity, would ultimately be much benefited by the greater accessibility he would have to the real workers, their materials and methods, at no unremunerated additional expense to himself. The manufacturer and real contractor would come only in honest competition with others in his own line and locality (a competition which no substantial business man ever objects to or should object to), and would deal directly with the architect, or the owner through the architect and his representatives, men who are paid for their professional services as professional services are always paid, and who have no object to secure work at prices inconsistent with a reasonable profit and a proper assurance of safety to the producer.

"The man who supplies the 'sinews' of the building operations, the owner, would be the most benefited of all by any measure designed to simplify and properly classify the functions exercised in producing large works. It is, of course, only of large works that I speak, and that chiefly require relief from the fictitious and unnatural conditions that prevail. He (the owner) deals directly with the producer through his architect, whose duties should include every function necessary to the assembling of the various branches of material and labor requisite to the con-

struction in hand, from the original conception of the building through all the stages of preparation in the drafting-room, of examining bidders and their bids, inspecting materials, visiting factories, if necessary, arranging the order of progress, and generally superintending the work until the structure is complete and ready to turn over to the owner. And he should be properly paid for it. So also should the men who execute the work. 'The laborer is worthy of his hire,' but the general contractor as a rule does not think so. His view of life does not extend to this truthful generalization, and so long as owners erroneously think that they obtain satisfactory business results through the general contract method, and so long as architects encourage them in this belief against their own better judgment, if they would but allow it to influence their policy, just so long will the producers of building specialties in this country be great sufferers at the expense of a comparatively small class of men who live, not so much by their brains and their industry, as by their wits, and who are in reality the parasites on this great field of enterprise. Not a single worthy individual would suffer more than momentarily by the most sweeping and sudden discrimination against general contractors. The good men would soon find their legitimate level, and the worthless ones, and many there are, who threaten the ultimate ruin of the craftsman, would mix with the other misguided people of the world and sink into obscurity, or drift into other lines perhaps better suited to their talents — at least the building business would be rid of them and would be a much healthier business for that reason.

"It is most misleading to say that the individual contractor is at liberty to give figures to the general contractor or not, as he chooses, and that he may discriminate between them. The general contracting evil has grown to such proportions that it must either be accepted or rejected in its entirety by the special contract and manufacturing class; either it must be embraced and all become in a measure general contractors, a step fatal to the best building progress, or the general contractor, as he is now found, must be driven from the field. To discriminate among these men would mean the loss of too much business, which, however, frequently serves the manufacturer only to keep his men employed, and is too often but a choice of the lesser of many evils.

"It is an evil of large proportions, say what who will, and a majority of men familiar with the conditions and representing the several general classes necessary to the construction of large works, admit that the principle of the thing is wrong. How to change a condition that has grown strong through the lethargy and short-sightedness of the real workers, is the question.

"In my opinion, the only solution of the question left for us to try is with the architects. I am inclined to think they recognize the real evils of the general contracting system, but accept it as the means of accomplishing certain ends with the least effort on their own part.

"It is undoubtedly true, as Mr. Renwick implies, that the good general contractor is generally much more familiar with the work and product of the producer than is the architect, and that he is in much closer relation to the work in hand; but should this be so, and is not this in a general way an admission that the subcontractor receives, as a rule, but scant consideration at the hands of the architect who frequently considers him a nuisance? If it was the architect, who has a definite remuneration in view for his labors, instead of the general contractor, who desires and intends to make all he can at whosesoever expense, who dealt directly with the producer and the worker, he would not find him the nuisance which the poor devil is sometimes moved to make of himself in trying to secure justice.

"No doubt buildings can and are frequently erected at no greater cost, as Mr. Renwick says, under the general contracting system. It is not the claim of cheaper buildings that I would urge for the direct system, but the claim of better results with less friction, and the profits to go where they belong, to the producers of the work and the architect who directs or should direct the work. Why should the general contractor be better fitted to direct the building operations than the architect? Most of them certainly are not, and if the larger offices were to employ upon a salary a man fitted for this work — and there can be no great scarcity of them — the same object would be accomplished with the great difference that the various real contracts would be concluded through fair and disinterested channels.

"As I previously stated, the architect's commission should be increased to cover this extension of his functions, and it might be made the opportunity to improve generally a scale of commissions that compares very unfavorably with the remuneration for most other classes of professional labor.

"In conclusion, I hold with the language of the petition that 'whatever may be said as to the policy of private owners erecting buildings under the system of general contracts, there should be no question as to what the policy of the Government should be,' and that the Government would be the great gainer in the end by increasing, if necessary, its Supervising Architect's staff for the purpose of itself conducting all the operations which properly belong to that department.

"The petition to Congress is an effort in the proper direction. The next step to be taken is to lay the subject properly before the American Institute of Architects and other influential bodies of this profession. They are the men to take up and remedy this evil, which most of them recognize as an evil, that can not, however, be handled except by unanimity of action.

"I am well aware that many producers believe that the only cure must come from the crafts themselves in united effort, and that we must bide the day when such unanimity will sweep the country like a rebellion; for they say 'the worm will turn.' Few men will be willing, these gentlemen hold, to disturb their own serenity of condition for the sake chiefly of others or for a principle affecting chiefly others, any more than in politics reforms are effected through the individuals who need reforming. No question is, however, successfully argued in generalities and I assume that the better class of architects are, unlike our politicians, a body of men anxious for progress and reform and willing to bear somewhat of the burden required for their accomplishment. At all events, spasmodic efforts have been made in the populous ranks of the crafts to obtain redress of their wrongs with a very small success, and I am very sure that no harm could come and perhaps the real curative be discovered through a proper and official and united appeal to the architectural bodies to furnish the leadership for an effort the other way around."

TIME SPENT IN MIXING.

AT the recent painters' convention in Buffalo, a paint manufacturer exhibited two large glass jars of paint ready for application. One contained pure lead and oil, the other the manufacturer's product, a combination paint, the object being to illustrate the difference in the quantity of paint produced from the two paste pigments.

But it illustrated another fact, nearly as important, which has hitherto been generally overlooked, that is, the great difference between the time that a paint containing a large proportion of zinc white and a straight lead paint remains in suspension. At the end of two days the layer of clear oil on top of the straight lead paint was fully twenty-five per cent of the whole, while on the combination paint the layer of clear oil had only begun to make its appearance.

Thus in forty-eight hours to keep the pure lead fit for use the painter would have had to spend one-fourth of the time originally required to mix, while with the combination paint, the mere dipping of the brush in the natural course of work would have sufficed.

Here then, we find another argument in favor of combination; not only that labor is saved, but that, as in the paint pot so on the freshly painted surface, the combined layer of pigment and oil remains more homogeneous, and therefore more equally durable at all points.

CHARLES JOURDAIN.

RAILROAD NOTES.

AN extract from a private letter says: "I like the D. L. & W. (Delaware, Lackawanna & Western). It is a pleasant road to travel over. Easy rolling-stock and accommodating officials, good dining-car service, etc. Jack says that he always travels to New York by that road. When he went in the car with me the porter said, 'Going to New York with us tonight, boss?' I had a most comfortable trip, slept all night and felt fine."

IT has been definitely decided by the Grand Trunk Railway, in connection with the Lehigh Valley, to put on two new fast express trains between Chicago and New York early this summer. The trains will run solid, leaving Chicago daily at a convenient hour in the morning, arriving at Buffalo early the following day and New York early in the afternoon; they will leave New York in the morning, reaching Buffalo early in the evening, and Chicago before noon the following day. These trains — which will consist of combination baggage and smoking cars, standard Grand Trunk coaches, the finest Pullman cars that this well-known establishment turns out, and the popular café-parlor cars, put into service some time ago on the "International Limited" and "Eastern Flyer" — are now being constructed. The large ten-wheeled Morse type engines will be used to haul them. These trains will, without doubt, become popular, operating as they will through a country full of beautiful scenery, and passing over the Grand Trunk single-arch, double-track steel bridge over the Niagara gorge, from which the view of the falls and whirlpool rapids is something magnificent; then passing through the "Land o' Lakes," in central western New York, giving a glimpse of the captivating view of one of America's most arcadian spots and the Wyoming valley, thence through Mauch Chunk, which has been called the Switzerland of America. This railway company is adding a number of modern coaches to its already large equipment, the new cars being officially known as the "2000 Series." They are of the wide-vestibule order, sixty-eight feet in length, and equipped with the latest impovements in air brakes and signals. The weight of the cars is 72,100 pounds, the seating capacity being seventy-two passengers. The windows, which are of Gothic architecture, are finished in a combination of oak and mahogany, the interior of the cars being done in quartered oak. The seats are of the standard reversible pattern, upholstered in crimson plush. The aisles are covered with brussels carpet, the floor of the large smoking-room, in connection, being done in linoleum. The other arrangements, sanitary and illuminating, are in keeping with the general order. By the end of the year the Point St. Charles shops will have turned out 500 of the 1,000 new 35-foot, 30-ton box cars, in addition to the coaches mentioned and general repair work, and twenty-four standard simple mogul locomotives of the Morse pattern, in which speed and strength have been taken into consideration.

OBITUARY.

EDWARD HALE KENDALL.

In the decease of Edward Hale Kendall, of New York, the American Institute of Architects and the profession has lost a valued member. In him lay that grace and gentleness that in every country marks the gentleman. And gentleman he was to a degree that, in picturing his life for the past twenty years, it is to Mr. Kendall as the man rather than the practitioner that the mind most readily turns. To him seemingly by natural selection came those offices of representation in which the dignity and tradition of the Institute were to be best preserved and most carefully sustained. Who of those few privileged members that called at Nashville upon the venerable widow of President James K. Polk ever forgot the perfect manner of his greeting in the name of the Institute, and the singularly appropriate words in which he expressed its respect for the memory of the dead and the esteem in which was held the privilege of calling upon her who had been his wife. In the councils of the Institute to him belonged the part of deliberation and conservative action, and now that he is gone there is one more place to be filled in the Institute Walhalla where, far up the sculptured hall, near, very near to that niche toward which all of this century must look to find the greatest, for never can there be another Richard Morris Hunt, the gentle, cultured image of Edward H. Kendall will surely be seen. His life will be itself a tradition and that inseparable from the best, in the direction of preserving to architectural practice all that is high and ennobling. Not only will the memory of the high ideals he strove for remain in the hearts of its members, but will be found inscribed in a hundred formal documents in the archives of the Institute.

ASSOCIATION NOTES.

THE Worcester Chapter of architects has elected the following officers: President, Stephen C. Earle; vice-president, James E. Fuller; secretary and treasurer, George H. Clemence. The meetings during the year will be subject to the call of the executive board. All architects who have men engaged in the profession three years are eligible to full membership, and those less than three years are eligible to associate membership.

CHICAGO ARCHITECTURAL CLUB.

Nelson Max Dunning was the successful competitor in the traveling scholarship competition of the Chicago Architectural Club, having received the largest average of votes in the four competitions. The subject was "A Residence for an American Ambassador in a Foreign Country." The competition was ably contested and was the subject of intense interest and discussion during the winter months, and called forth all the abilities of the contestants. Mr. Dunning's brilliant victory was closely contested by John H. Phillips, William E. Drummond, Burch Burdette Long and T. E. Tallmadge, who completed the series, the pace having left by the wayside half a dozen others who appeared in the first of the series.

The fourteenth annual exhibition of the club is being held in the Art Institute galleries from March 28 to April 15. About four hundred drawings are shown.

WASHINGTON ARCHITECTURAL CLUB.

The Washington Architectural Club is holding its annual exhibition of drawings at the Corcoran Art Gallery, in conjunction with an exhibit of the Washington Society of Artists.

The club makes a very creditable display indeed. Besides its own members' drawings it has a very good collection of "loans." Altogether the exhibition is one of the best I have seen anywhere for years. Pictures are well hung, carefully selected, intelligently catalogued, and on the whole reflects great credit upon the Washington Club.

Wednesday evening, March 27, the trustees of our splendid Corcoran Gallery gave a reception in honor of the two clubs. It was a society event, several thousand people, the élite of our capital city, attended and expressed great admiration for the pictures as well as for the members of this young club, that, we may safely say, has been well launched into the turbulent waters of architecturedom.

Hopkinson Smith's dashing drawings of the Buffalo Exposition buildings attracted much attention; so did Ernest Flagg's designs for the Naval Academy buildings, and there were fine drawings from the T-square Club, of Philadelphia; the Chicago Architectural Club, the Cincinnati Club, not to forget mentioning the great number of clever drawings, the result of home talent. In all there were some three hundred and fifty pictures, each and all of them of exceptional merit.

The president of the club is Thomas F. Laist; the secretary, Percy Ash, and treasurer, Charles M. Baker, all of the Supervising Architect's office. There are nearly eighty active members, a great many of whom naturally are of the Supervising Architect's office. There is a good *esprit de corps* among them; they do good work, they have money in the treasury, and by their zealousness and ambition are quickly forcing themselves to the front rank among the architectural clubs of the country.

MOSAICS.

THE jury in the competition for the John Stewardson memorial scholarship in architecture at the University of Pennsylvania awarded the $1,000 prize to I. W. Hoover, of New York. There were thirteen competitors. Mr. Hoover is a graduate of the class of 1900 in the architectural school of that university.

THE New York Court of Appeals has held as unconstitutional the law which compels contractors on public works to pay "the prevailing rate of wages." The law not only abolishes the assumed right of labor unions to fix the rate and leaves the contractor to hire labor on individual terms, but does away with the requirement that all dressing and carving of stone should be done within the State.

THE George A. Fuller Company has reorganized under the laws of New Jersey with a capital of $20,000,000. The intention is to widen the scope of the company so as to include steel and metal construction of all kinds. The Executive Committee is composed of the following: James Stillman, Henry Morganthau, Hugh J. Grant, Henry S. Black and Judge S. P. McConnell. One of the first results of this reorganization and which suggests that a line of policy has been adopted, is indicated by the conditions of contract for the Tribune building at Chicago, which, it is reported, provides that no money shall be called for until the completion of the contract.

IN view of the rapid growth of the business of the Tiffany Enameled Brick Company, and the necessity of closer relations between the business manager and the superintendent in answering inquiries, getting out new orders, making shipments, etc., it has been decided to remove the general offices from Chicago to the factory at Momence, where general correspondence should be directed except from Chicago, where communication may be made with the local agency, 1007 Chamber of Commerce building, at the office of the Thomas Molding Company, which will act as sales agents for Chicago. The address of the vice-president and manager, J. Van Inwagen, Jr., will be at Momence, Illinois, and that of the president, J. Van Inwagen, at 1007 Chamber of Commerce building, Chicago.

A COMMUNICATION has been received asking for information about steam and hot-water heating, especially heating from a central plant, and, as we understand it, what publications are of authority. We do not know of any one publication on the subject of heating from a central plant exclusively, but there have been many articles published in various technical publications, such as the *Engineering Record, Heating and Ventilation,* etc., on the subject. As to general information about heating by steam and hot water the inquirer may find what he desires in the book by Robert Briggs, John H. Mills, W. J. Baldwin, F. Schuman, Charles Hood, R. C. Carpenter and others. "Heating and Ventilation for Buildings," written by the last named, gives a list of publications on such subjects. It is impossible to advise as to details. That would require a thorough knowledge of all the circumstances of the particular case and it belongs to the province of an expert engaged for the purpose.

OUR ILLUSTRATIONS.

Store Building, Chicago. S. A. Treat, architect.

Wells Office Building, Milwaukee, Wisconsin. H. C. Koch & Co., architects.

South Side Turn Hall, Indianapolis, Indiana. Vonnegut & Bohn, architects.

Addition to Retail Store of Marshall Field & Co., Chicago. D. H. Burnham & Co., architects.

Design for Carnegie Public Library, Davenport, Iowa. Calvin Kiessling, architect, Boston, Massachusetts.

Depot for Illinois Central Railroad, Springfield, Illinois; also at Decatur, Illinois. Francis T. Bacon, architect.

Competition Design Maryland Court of Appeals Building, Annapolis, Maryland. Ellicott & Emmart, architects.

United States Postoffice at Oakland, California. James Knox Taylor, Supervising Architect of the Treasury, architect.

House for Daniel Kelleher, Seattle, Washington. Charles H. Bebb, architect. The Exterior and View in Library are shown.

Accepted Competition Design Maryland Court of Appeals Building, Annapolis, Maryland. Baldwin & Pennington, architects.

Photogravure Plate: Residence of Mrs. Joel Wood, St. Louis. Weber & Groves, architects.

PHOTOGRAVURE PLATES.

Issued only with the Photogravure Edition.

A Chicago Intake Crib, Lake Michigan.

House of W. R. Robeson, Springfield, Massachusetts. G. Wood Taylor, architect.

Residence of Miss Lenora Denny, Seattle, Washington. Charles H. Bebb, architect.

Residence of T. C. Taliaferro, Tampa, Florida. Weber & Groves, architects, St. Louis, Missouri.

Simmons Memorial Library, Kenosha, Wisconsin. D. H. Burnham & Co., architects, Chicago. The following views are shown: Exterior; View in Reading-room; View in Rotunda.

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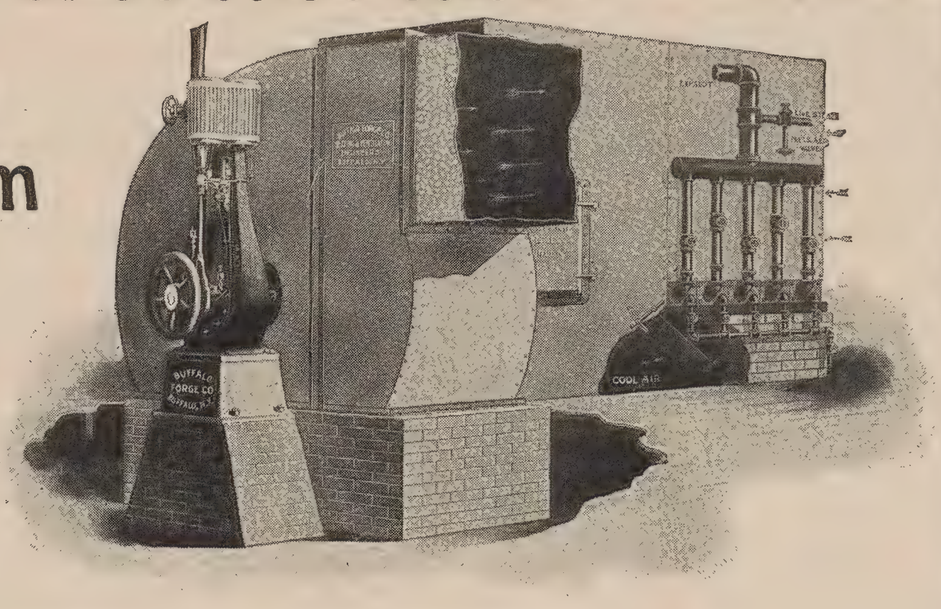

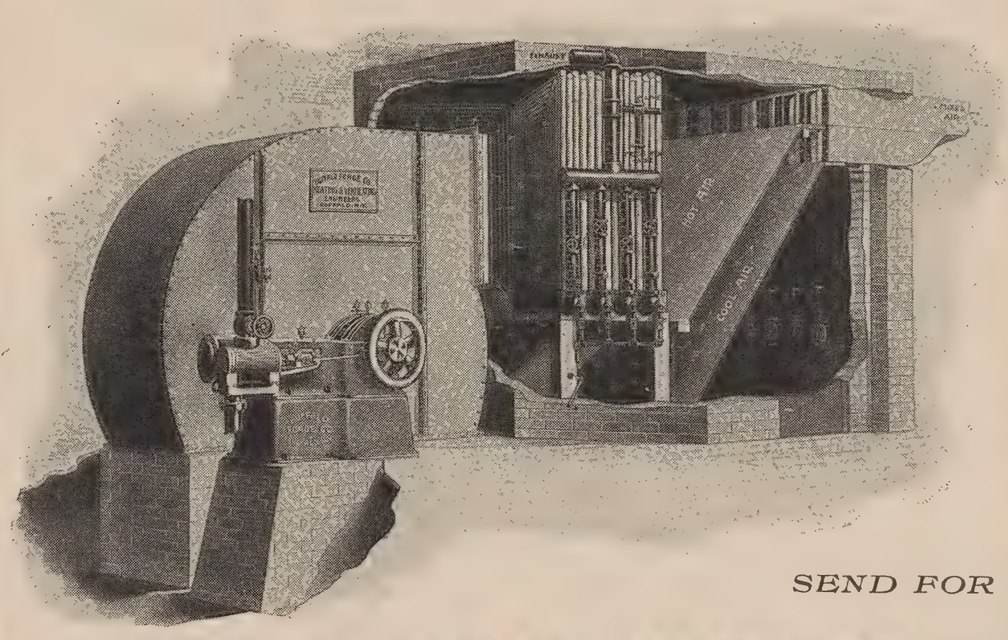

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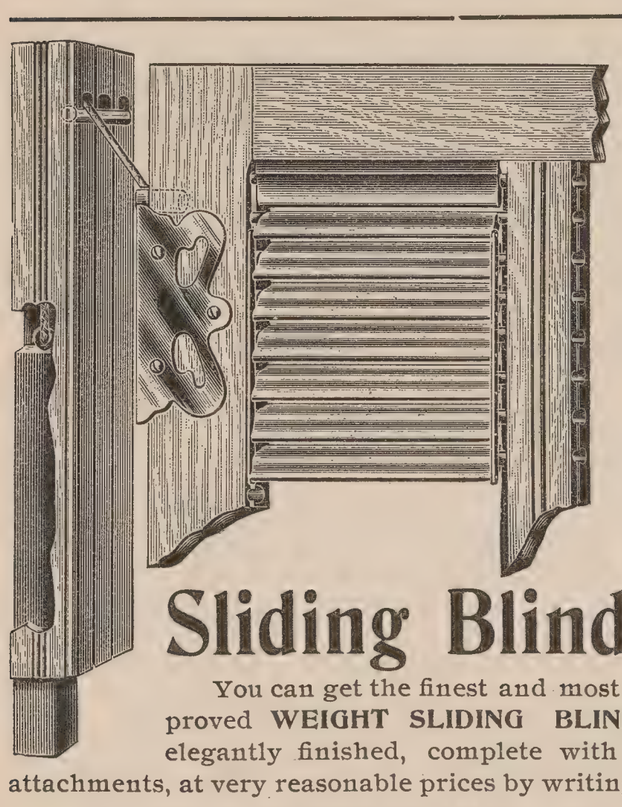

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THE INLAND ARCHITECT AND NEWS RECORD

Vol. XXXVII. ADVERTISERS' TRADE SUPPLEMENT. No. 3

Valuable Publications Free.

Any architect can secure valuable books of reference without cost by sending for the catalogues of materials, etc., noticed from month to month in these columns. Large sums are spent on these catalogues, and they contain much practical information. Many are art productions. They may be obtained free on application to those issuing them. In writing please mention THE INLAND ARCHITECT, and oblige the journal and the dealer.

REQUESTS FOR CATALOGUES AND SAMPLES.

Those wishing catalogues and samples sent them by dealers in general may have their names inserted under this heading free of charge. The only recompense desired is that the dealers who send catalogues to these addresses give THE INLAND ARCHITECT due credit for business benefits that result.

E. H. TURNOCK, Architect, 606 Chicago Opera House Block, Chicago.

MORRISON H. VAIL, Architect, has opened an office at the City National Bank building, Dixon, Illinois, and requests samples and catalogues at that address.

N. & G. TAYLOR CO.'S TINPLATE WORKS.

N. & G. Taylor Company, tinplate manufacturers, have just erected at their tinplate works in Philadelphia a large and commodious machine shop, complete in every way with the most modern machinery, turning-lathes, drills, shapers, forges, emery wheels, etc. They have also lately added two tinning stacks, making now twenty-five in all. Their tinhouse is acknowledged to be, in its complete equipment, unexcelled in the world. They are running to their full capacity and report a most excellent business in all their departments. They have also given out the contract for an additional building for their assorting and warehouse department, which will give them much greater facilities for promptly handling and shipping goods. The recent large additions to their rolling-mills at Cumberland, Maryland, necessitate the above improvements.

A NEW RUBBER GOODS CATALOGUE.

The New York Belting & Packing Company, Limited, 25 Park place, New York city, has just issued a new catalogue and price-list of its manufactures in the rubber goods line, embracing an endless variety of articles used in the mechanical arts and sciences, which will prove a valuable adjunct to any well organized manufacturing establishment.

Rubber belting, packing, hose, automobile tires, tubing, vulcanite, emery wheels, gaskets, mats and rubber tiling stand out prominently, but the numberless little rubber "essentials" are also extensively represented. The catalogue is gotten out in convenient size, is well printed on an excellent quality of paper in clear new type, copiously illustrated with unusually good half-tone engravings and woodcuts. The descriptive matter makes good reading — brief, clear and to the point. Copies will be furnished free to those interested.

BUTCHER'S BOSTON POLISH.

On page vi of this issue, the Butcher Polish Company, 356 Atlantic avenue, Boston, calls attention to its celebrated polish for floors, linoleums, interior woodwork and furniture. It is claimed to be the best floor finish made, and has not a single objectionable feature. It is not brittle, will neither scratch nor deface like shellac or varnish, and is not soft and sticky like beeswax. It is perfectly transparent, preserving the natural color and beauty of the wood for years. Write for circulars, etc.

TRADE NOTES.

A GENTLEMAN of very extensive acquaintance among architects and builders in Chicago would like to represent some Eastern firm in some line in connection with the building trades. Address M. H., care INLAND ARCHITECT office.

THE Central Park avenue and the Springfield avenue, Chicago, pumping stations, illustrated in the March number of THE INLAND ARCHITECT, are equipped with the steel rolling doors and shutters manufactured by the Kinnear Mfg. Co., Columbus, Ohio, and Chicago.

MR. F. R. COMSTOCK, of New York, architect of the Second Church of Christ, Sixty-eighth street and Central Park West, in that city, has adopted a most effective scheme of lighting by concealed lamps with powerful reflectors throwing the light upon the large domed ceiling, which in turn reflects and diffuses the light evenly throughout the church. The execution of the work is in the hands of I. P. Frink, of 551 Pearl street, New York, who has made a specialty of this method of lighting. The ceiling of the Waldorf-Astoria ballroom, lighted on much the same principle, is another example of work along this line, which has added to the Frink reputation for successfully handling any lighting problem that may be presented. When well done (and experience is a most important factor in the well doing), this is about the most effective method of lighting concert and lecture halls, ballrooms and other beautifully decorated interiors.

RAILROAD NOTE.

THE BURLINGTON FAST MAIL UNSUBSIDIZED.— It is well known that the Burlington Route is selected by the Government, and has been for many years, as the route for its through mail service between Chicago and Council Bluffs. The overland mail and the through mails from Europe across the continent to Asia, are sent by the Government over the Burlington. This service is performed in special trains, but there is no written contract for the service with the Government. It simply has selected and retains the best, quickest and safest route for its transcontinental mails; nor is any subsidy paid. The Burlington receives only the same rates in force by general law for the carriage of all mails in the country. In a recent debate in the House of Representatives at Washington, upon the question of paying a subsidy to a line of railroad between New York and New Orleans, for keeping up a fast mail service in the South, Mr. Loud, of California, chairman of the Committee on Postoffices and Postroads, in giving his reasons for voting against this subsidy to the Southern railroad, paid the following high tribute to the Burlington. He said: "If subsidies are proper, you should not restrict them. If there is any railroad in the country that earns extra compensation from the Government, that railroad is the Chicago, Burlington & Quincy, from Chicago to Omaha, which runs phenomenally fast trains, carrying nothing but mail; but that company does not ask for a subsidy."

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THE INLAND ARCHITECT AND NEWS RECORD

Vol. XXXVII. APRIL, 1901. No. 3

TECHNICAL REVIEW, THE MERCHANTS' LOAN AND TRUST CO. BANK BUILDING, CHICAGO.

CHICAGO'S MOST MODERN BANKING AND OFFICE BUILDING.

BY E. C. CLARK.

RECENT modifications of the architectural idea as applied to the plan and construction of large commercial buildings show a tendency toward the extremely practical. As the value of frontages increases and economy of space becomes more urgent, the study of the architect is directed to the details of arrangement, service, earning capacity, etc., rather than to the designing of an imposing shaft of architecture; for it is a coldly commercial age, and the very environment of the modern office building demands sober and practical treatment, almost entirely devoid of that romance of architecture which is so dear to the heart of every real artist of the craft.

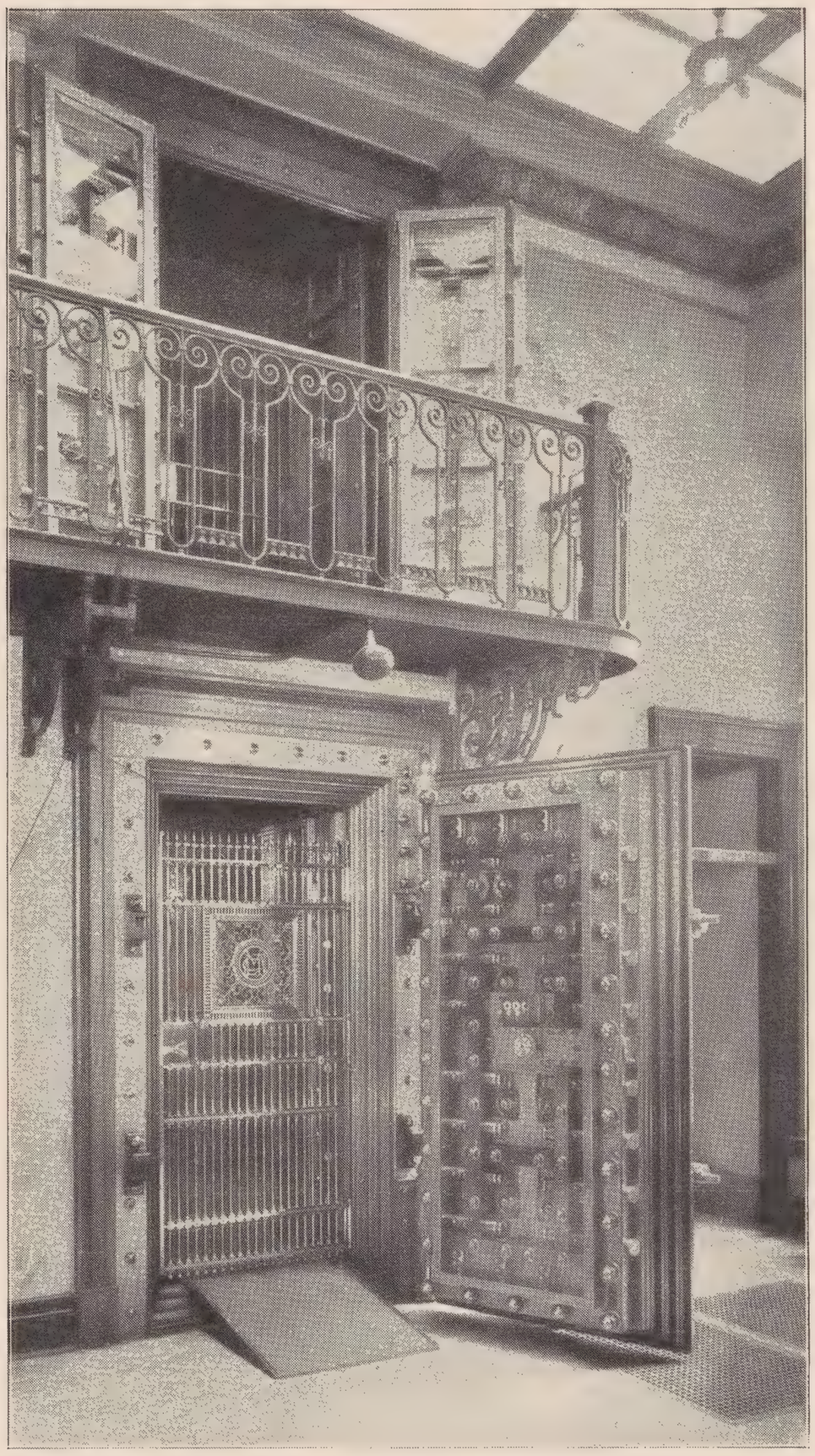
To plan columns and cornices and swelling fronts with a view to impressiveness of exterior is, and doubtless should be, the waking dream of the true lover of architecture. But to construct an enduring and dignified pile at the intersection of two leading thoroughfares in a great city, with both exterior and interior of harmonious and appropriate design, with ornament subordinated to utility and with every detail drawn to the line of commercial advantage — that is the hard technical task of the twentieth-century architect.

Much depends upon location, street frontage, view, etc. Narrow streets and a confined outlook will not permit of tower effects. Efforts made to present an imposing and original front of great beauty of design where, by the very nature of the location, it is impossible to see or appreciate such design in its true proportions, are efforts worse than wasted. Nor is there any lack of such instances in Chicago. On every hand are to be seen buildings of most artistic exterior, which would fittingly grace the Lake Front Park or a public square, but whose expensive ornamental features are entirely lost in the haze and grime and congestion of narrow city streets. Far better would it have been to reserve that ornamentation for the interior, where it could be seen and appreciated by the tenants, and where it would be safe from the despoiling touch of the elements.

After all, utility is the foundation and simplicity the mark of beauty. The tawdry efforts of some builders to make elegant a building which lacks every other substantial architectural quality reminds one of Goldsmith's famous lines, where he says:

"As some fair female, unadorned and plain,
Secure to please while youth confirms her reign,
Slights every borrowed charm that dress supplies,
Nor shares, with art, the triumph of her eyes;
But when these charms are past, for charms are frail,
When time advances and when lovers fail,
She then shines forth solicitous to bless
In all the glaring impotence of dress."

The combination of a bank and office building presents not a few practical problems of prime importance. The requirements of the bank must not be sacrificed to the convenience of the offices, and vice versa. While the building must in every sense be a bank building, with all the modern accessories of the city bank, including safety deposit and private vaults, imposing marble entrance, ideal natural light, etc., yet all these must be obtained for the banking-rooms at no expense to the general utility of the building as a store and office structure. On the contrary, they

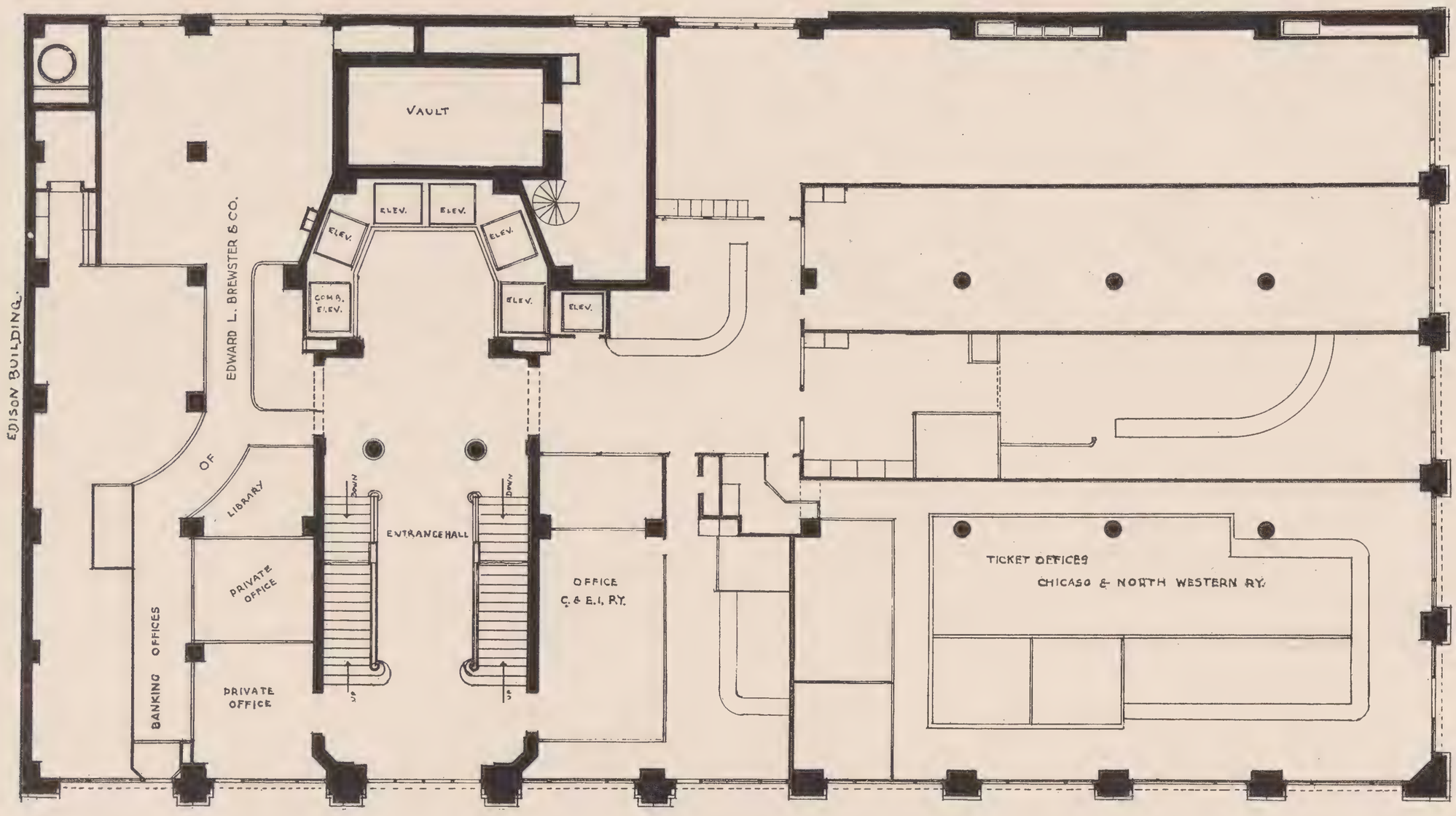


VIEW OF DOUBLE VAULT IN THE BANK FOR MONEY AND PAPERS.

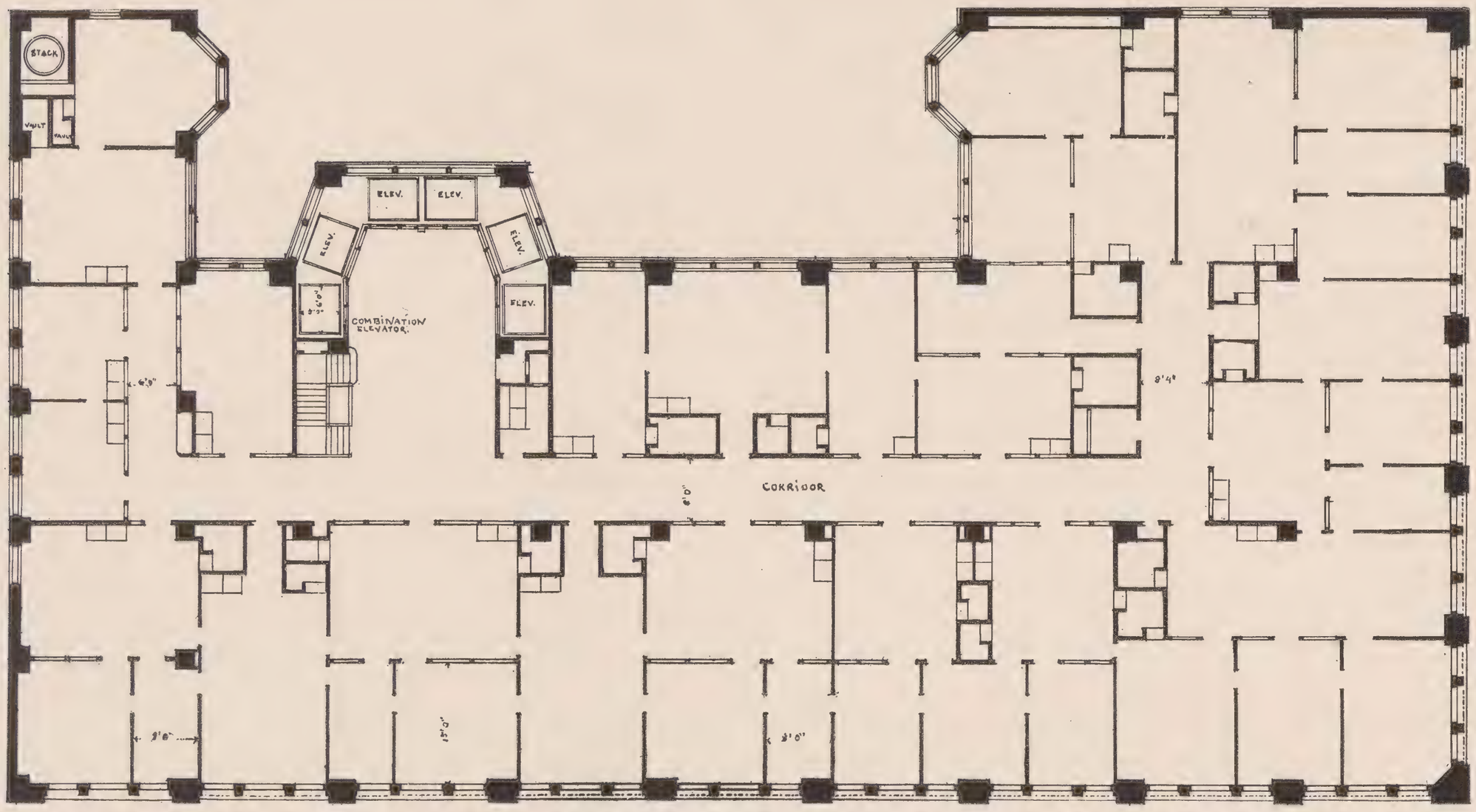
must, if possible, be made to contribute to the general desirability of the plan, so that tenants will be attracted to the building by reason of its banking and deposit facilities.

One of the most striking instances in point is the new Merchants' Loan and Trust Company Bank building, erected by Messrs. D. H. Burnham & Co., architects, on the northwest corner of Clark and Adams streets, Chicago. This building is both an ideal home for the bank whose name it bears and is also a very attractive office building. Its main features are well worthy of study from a practical architectural standpoint, since they emphasize a very important modern tendency in commercial construction — the tendency toward simplicity and durability rather than efflorescent ornamentation. The effort in planning and building the Merchants' Loan and Trust Company Bank building was to secure the best possible combination bank and office structure that the site would justify and money would buy, and the finished product meets all expectations.

The Merchants' Loan and Trust Company Bank occupies the northwest corner of Clark and Adams streets, having a south and east frontage of 182 and 100 feet respectively. It is twelve stories high. The building fronts on Adams street, in the sense that its main entrance is on that street and its general floor plan faces to the south, but from all exterior appearance it presents an east as well as a south frontage, and is a corner building. A glance at the plan, however, will disclose the fact that the main frontage of the building rests on Adams street and that this is flanked by two wings extending toward the north, the eastern wing resting on the Clark street frontage. This arrangement is ideal as concerns light and air and accessibility of all parts of the building.



FIRST FLOOR PLAN.



TYPICAL OFFICE FLOOR PLAN.

Entering at the Adams street front and taking the elevator in the rear of the corridor, we are whirled rapidly to an upper floor and landed in the center of the office section. Broad hallways lead across and to right and left, intersecting the main portion of each floor, and thence at extreme east and west to shorter hallways leading to offices in the north end of the two flanking wings

of the building. It is the shape of a gothic letter "E." On both sides of the halls are offices, and every office is an outside room. Those on the south side front on Adams street, on the east on Clark street, on the north and west on the open courts, which insure a perpetual easement of light and air. There is not a dark room in the building. There are no dark corners or inaccessible offices. The entire plan is grouped around the main elevator shaft, to which every office door is within easy call.

So much for the general plan of the office portion of the building. The arrangement of the bank and vault floors will be found equally simple and effective, and in entire harmony with the office portion. The object was to provide for the bank the most commodious, light and elegant banking-rooms in the city, and also to set apart a portion of the floor for the use of the clearing-house, with sufficient room for all future requirements, yet not nearly as much space as allotted to the bank. At a rough estimate, the clearing-house would require about one-fourth of the available space on the floor, and the bank the other three-fourths. The problem was to so construct the entrance as to divide the space in that proportion and at the same time make the entire building harmonious.

How this was accomplished may be seen by reference to the printed plan. The main entrance on Adams street was placed to the left of the space allotted to the banking-room, or in other words, at about three-fourths of the length of the building from the Clark street corner. This arrangement brought the superb marble staircase and the battery of elevators at the left of the banking-room and to the right of the clearing-house. The building is divided unequally, but properly, between the two great main divisions of the banking floor. Instead of this plan being a detriment to the office floors, it is a distinct benefit, inasmuch as it shortens the hallways and the office rooms on the west side of the structure, where only it is possible for other buildings to interfere with the free passage of light and air. The advantage of this arrangement is best seen from the floor plans. A double purpose is thus served by placing the entrance to the left of the center of the Adams street front.

The exterior of the building has been described as severely plain, and in the sense of architectural ornamentation it is so. There is no waste of money or space in a mere attempt to please the eye with "gingerbread." The aim has been to produce a building which should be a harmonious and perfect whole, of stately and imposing proportions, suited in every way to the uses for which it was designed, and a substantial ornament to the corner which it occupies. It needs but a glance at the exterior of the Merchants' Loan and Trust building to see that the architect has carried out this idea successfully. There is no waste space either outside or inside the building. There is no immense ground floor corridor and interior light shaft at great loss of space and renting value. By skilful planning this has been rendered unnecessary. Light has been secured from without instead of from within the building. The superiority of this method is evident.

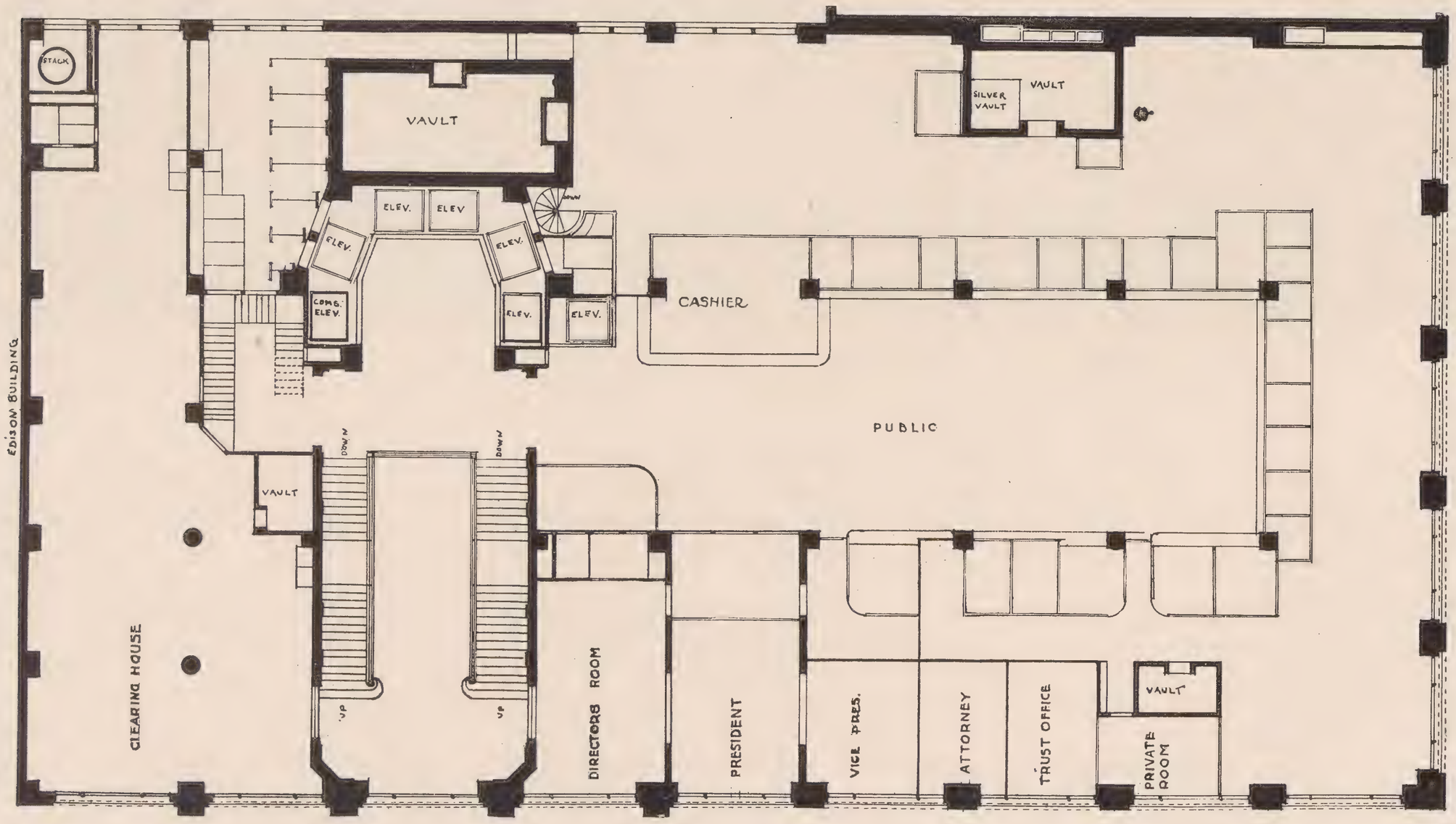
GRAND MARBLE STAIRWAY AND ENTRANCE TO MERCHANTS' LOAN AND TRUST CO'S BANK BUILDING.

The experience of a quarter of a century has demonstrated that it does not do to attempt elaborate ornamentation on the exterior of office buildings in a dark and dirty city. Light, air and cleanliness demand simple treatment. This is well illustrated by the modern method of court construction, where the walls are

VIEW OF TRUST DEPARTMENT OF BANK.

faced with white enameled brick, with but slight reveals at the windows and no deep recesses anywhere. Ventilation is facilitated by this treatment; cleanliness is made possible if the hose and scrubbing-brush is used industriously; light is obtainable at its maximum under all conditions. Owners and architects alike have long since decided that a similarly simple treatment must be applied to city fronts.

The main entrance presents a striking appearance. The wide marble stairways, flanking the main hall on either side, give to the interior an air of solidity and elegance which could not be so



SECOND OR BANKING FLOOR PLAN.

effectually set forth by the use of any other material. The entire interior of the vestibule is finished in white (Parian) marble — statuary marble, as it is known — only the panels of the ceilings being of the mottled variety. The features of the staircase which are of special note are the magnificent newel posts crowned by electroliers of original and beautiful pattern, and the solid marble columns near the elevator entrance. The floor of the vestibule is in mosaic. All the electroliers, on ceiling and stairway, are of strikingly beautiful and artistic pattern.

From the rear of the vestibule one may pass to left or right into spacious ground-floor offices, most of which have a street entrance also, either on Adams or Clark street. To the left is the palatial office of Edward L. Brewster & Co., bond and stock brokers, and to the right are the passenger ticket offices of the Chicago & North-Western Railway, and other offices. The furnishings in these offices are of the most luxurious and costly pattern, and the appointments are in every way ideal.

GENERAL VIEW OF DIRECTORS' AND PRESIDENT'S ROOMS OF MERCHANTS' LOAN AND TRUST CO'S BANK.

The safe deposit department, in the basement, is the most commodious and light and cheerful institution of the kind west of New York, and in some respects is unequaled by any similar institution in the world. The offices leading to and surrounding the vault are perfectly arranged. The floor is of art marble laid in hexagonal panels. The grilles are of massive bronze, substantial enough to resist the advance of an army, yet really of beautiful design and delicate workmanship. The furniture is of mahogany, in Bank of England style, very rich and substantial. The wainscoting and counters are of Vermont marble.

The vault is a massive piece of architecture in itself, and is peculiar in the fact that it stands entirely alone, surrounded by an open space on all sides, and has a foundation altogether independent of the rest of the building. The arrangement is unique and strikes the visitor at once as of especial advantage. Tons of railroad iron and concrete form the foundation, which is of sufficient strength to afford a substantial support to the main floor above the vault itself. The vault walls are of most approved construction. They are lined on the outside with white enameled brick for cleanliness and light. On the inside walls, extending all around the vault and from ceiling to floor, are the boxes, 4,006 in number. Cross partitions, which will some time be put in, will increase the capacity to 9,000 private compartments.

The doors of the vault deserve special mention. They are two in number and both are double doors. The main door is supplemented by an emergency door, on the opposite side of the vault, for use in case of failure for any cause to open the main door. The outer door is automatic and regulated as to hours of opening and closing by time locks, and the inner door a double combination. The outer door weighs between seven and eight tons, yet moves on its hinges with ease, and is provided with rubber lining in its flanges, which makes it practically air-tight when closed and acts as a cushion to prevent severe concussion in closing.

As before stated, a broad walk leads all around the vault. The watchman is thus enabled at all times to view all sides of the treasure-box. Under the sidewalks on the Clark street and Adams street sides of the building are located the directors' rooms, elegantly furnished in mahogany. On the vault side of the passageway are arranged the private rooms for box-holders, each room having one or more chairs, a table and an electric light.

The directors' room and private meeting rooms are lighted from above through the sidewalks by means of prisms. The appointments are elegant and convenient throughout. Of course, it is understood that the safe deposit vaults are entirely separate from and independent of the bank vaults.

The general arrangement of the banking-room is well shown in our illustration, taken from a flash-light photograph of the bank during business hours. The visitor is first impressed with the ample space allotted to the patrons of the bank for their convenience in the transaction of business, the perfect arrangement of the various departments, the ample lighting facilities, the elegant furnishings and the general appearance of commodious elegance which the bank presents on entering. It certainly is not surpassed by any other banking-room in this country, and it would be difficult indeed to suggest any particular in which it could be improved.

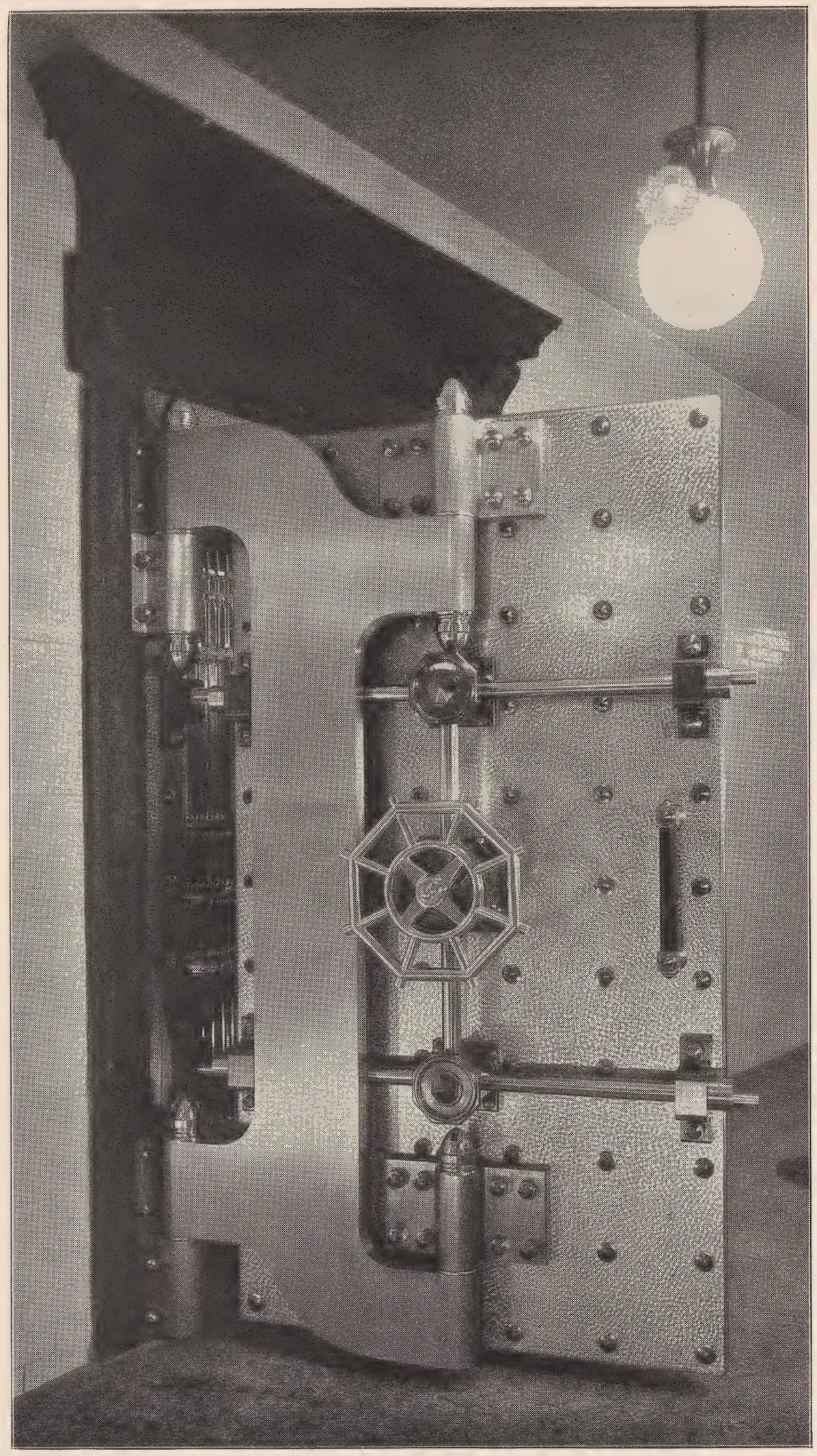
The floors are of marble mosaic, in chaste designs and soft oriental colors. The ceiling is laid out in panels, with ornamentation in the style of the French Renaissance. The massive columns which support the ceiling are adorned with graceful cartouches. Clusters of seven electric lights each relieve the otherwise monotonous ceiling panels and throw a soft glow over the scene. The color scheme is light olive on walls and ceiling, with gold ornamentation, bronze hardware and mahogany furniture. It is harmonious and quietly elegant. Even the floor mosaics are in strict keeping with the general color plan.

The wainscoting is of Italian marble, the Pavanazzo, framed in Alps green. The polished bronze grilles forming the partitions between the various working departments of the bank are substantial and elegant. They impress one as being both superlatively strong and beautiful — a combination not easily secured. Inside the working department the greatest care is evident as regards attention to the details of arrangement for convenience, accessibility and despatch in the transaction of business. The appointments of the bank, from a banker's point of view, are perfect.

Passing through the heavy gate leading to the private working department of the bank, we come to the specie and currency vault, to which entrance is had immediately from the bank floor. This is really only one of a series of four vaults, one above another, extending from the water-line up to the bank floor and communicating with each other by means of a spiral iron stairway. These vaults are entirely free from any connection with the walls of the building, and are wholly surrounded by an open passageway. The two lower vaults are used for the safe keeping of books, papers and other valuables. The upper vault, on the bank floor, holds currency, bonds, etc., for the immediate use of the bank. Small safes or specie vaults inside the main vault contain the money. This vault is protected by a 4-inch chrome steel lining and a 7-ton automatic door. In addition to this tier of banking vaults there are two other safe receptacles on the banking floor — a book vault for the use of the bank, on the north side of the building, and a book vault for use of the trust department on the south side of the building.

VIEW OF LADIES' PARLOR AND LAVATORY IN SAFE DEPOSIT VAULTS.

On the south side of the banking floor are the directors' and president's rooms, and a suite of offices for the various officials of the bank. Here we find the perfection of bank furnishing in the mahogany tables, chairs, panels, the rich oriental rugs and the marble mosaics, all blending harmoniously with the decorations of walls and ceiling and giving an air of richness and elegance not comparable with the ordinary interior treatment of commercial rooms.



EXTERIOR VIEW OF GREAT VAULT DOOR, SHOWING MASSIVE HINGE.

The same artistic and discriminating treatment has been applied to the offices of Edward L. Brewster & Co., on the ground floor at the left of the main entrance of the building. The finish is mahogany throughout, the furniture being in Bank of England style. Especially noteworthy are the hand carvings, which are enduring works of art. Electroliers of striking and original design add beauty to the ornamentation. The general effect is that of the most elegant and commodious stock brokerage office west of New York. The customers' room is one of the largest in this country. It has two large blackboards, and private-wire service to all leading exchanges, putting the office in immediate communication with the markets of the world. The offices of Edward L. Brewster & Co. are easy of access, both from Adams street and the bank corridors, and are of ample size for

PRIVATE OFFICE OF EDWARD L. BREWSTER.

the accommodation of the immense business which has been built up by this enterprising house. The interior presents an appearance of elegance and repose that must be seen to be appreciated. Every detail has been carefully planned with a view to the use to which the room was to be put. Even the furniture is of special design to match the mahogany finish of the office. The handsome marble mosaic floor, the elegantly decorated walls and ceiling, the massive mahogany columns with carved capitals, in fact, the entire color plan and finish are in the highest degree artistic and elegant.

Above the bank floor are the offices, extending from third to twelfth floor inclusive. Little remains to be said of these that could not be said with equal propriety of any other first-class office building. It is worthy of note, however, that every detail of construction is first-class. The plan, the materials, the workmanship are all the best. The offices are of convenient size and shape, opening off broad halls, and all are readily accessible to the elevators. Not a dark or semi-dark office is to be seen in the building. Free exposure to exterior light and air is the rule throughout.

Six elevators afford rapid transportation from street to roof. At first glance this service would seem to be inadequate, but, in fact, it is ample for all requirements. Modern elevator service does not depend on number of cars but on quick transit, the facility of starting and stopping quickly, and easy ingress and egress for passengers. In this respect the elevator equipment of this building is a model of completeness in a remarkably small space.

Entirely separate from the main battery of elevators is the bank elevator, which affords easy communication between the bank floor and the safe deposit vaults in the basement. At the left as we enter the banking-room is the entrance to this bank elevator, which is only one of the many convenient and luxurious appointments of this truly elegant bank and office building.

THE CONSTRUCTION IN DETAIL.

THOSE who wish to follow the building more thoroughly in its practical construction will find the component parts essential to a great building fully described in the following text:

GRANITE.

On street fronts the massive granite construction of the building is noticeable. It is the famous Hallowell granite. Though used only as a facing or veneer, the ironwork of the structure being entirely independent, yet it presents all the appearance of a solid stone construction, and to all intents and purposes is such. Very different this from the usual thin veneer of brick. The stonework in this instance is built up solidly from foundation to roof, and for the most part is eighteen inches thick, forming an enduring and imposing construction of masonry on both street fronts. Its effect is one of solidity which no other material would have conveyed as well, and its enduring qualities are destined to be proved by time in outlasting even the less exposed portions of the building.

THE MARBLES AND MOSAICS.

Even the casual visitor can not have failed to remark the beautiful and elegant character of the marble and mosaic work in the Merchants' Loan & Trust building. When compared with similar work in other buildings of recent construction it will be found to be fully up to the highest standard of excellence. The C. F. Italian, or statuary marble, as the highest grade Italian marble is called, is used freely in the staircase and entrance and elsewhere. For wainscoting and counters and base a variety of colored marbles are used, such as Alps green and Pavanazzo, but all of the best, and always with due regard to the harmony of color and general effect and the particular use for which the finish is intended. The mosaics also are in keeping with the general plan of ornamentation, both as regards color and form. The entire plan of interior finish must be seen and studied to be appreciated at its best.

ORNAMENTAL IRON AND BRONZE.

In a bank building there is something more than an ordinary opportunity to display a fine quality of work in metal. The grilles of the banking room itself and of the vault rooms are so conspicuous that they demand a most careful and artistic treatment in order to convey to the beholder an impression of strength and lightness and beauty, without the least trace of offense from harshness or clumsiness. Iron has been largely superseded by bronze because of the enduring and manifold characteristics of the latter. It is capable of so many changes of form and finish, and is such a permanent factor in a building that it is especially appropriate to a modern fireproof structure.

In this building we note the liberal use of bronze, both in the

MAIN ENTRANCE, ADAMS STREET.

dull finish and in the polished bronze. The grilles surrounding the working department of the bank are especially noticeable as presenting an elegant and pleasing appearance in spite of their great strength. The same treatment has been applied throughout wherever ornamental iron or bronze has been used. The electroliers at the entrance are delicate and refined, as is all the work accomplished by the Winslow Bros. Company in bronze and wrought iron.

IRON AND STEEL CONSTRUCTION.

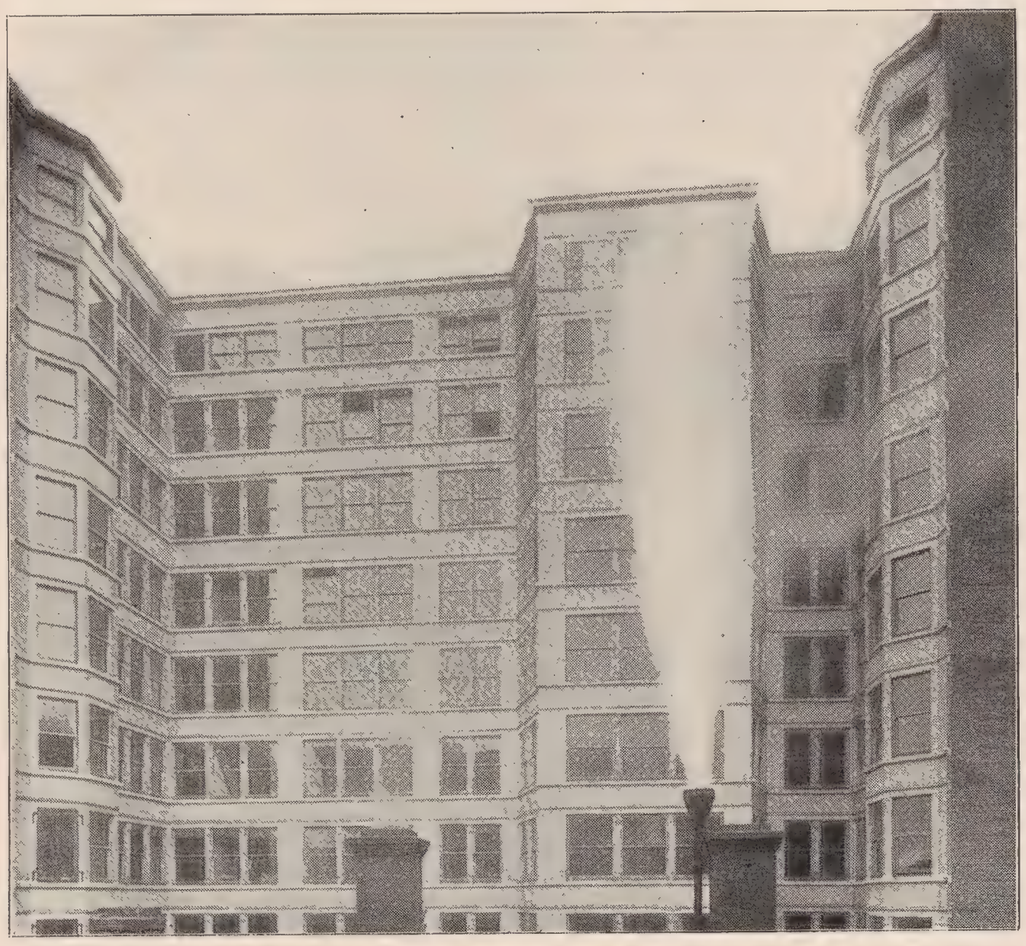
The usual steel framework has been used in this building, the walls being entirely independent of the steel columns and floor beams. The banking floor presented some unusual difficulties in the matter of bridging the wide open space over the portion of that floor which is devoted to the public. By a proper disposition of the supporting columns and a liberal use of plate girders, box girders and lattice girders, this long span was effectually bridged without marring the appearance of the interior. Above the bank floor only the usual problems of the steel frame construction were encountered. With entirely separate foundations for the vaults, both in the safe deposit department and in the bank, the frame of the building can never be subject to any unusual strains due to more than ordinarily heavy weights imposed upon it. With its steel frame and granite enclosure it is as enduring and immovable a structure as could well be planned.

ENAMELED BRICK.

A simple and efficient building material applied to the peculiar conditions existing in city construction has revolutionized the ideas of architects and owners and tenants as regards the desirability of offices whose windows open on courts and alleys, as compared with offices opening on city streets. Formerly it was difficult and in some cases impossible to get satisfactory tenants for these court offices. Now they are considered the most desirable offices in the building, and an inspection of the rear or court walls of any new modern building in which enameled brick are used will at once reveal the cause of this "change of front," as it were.

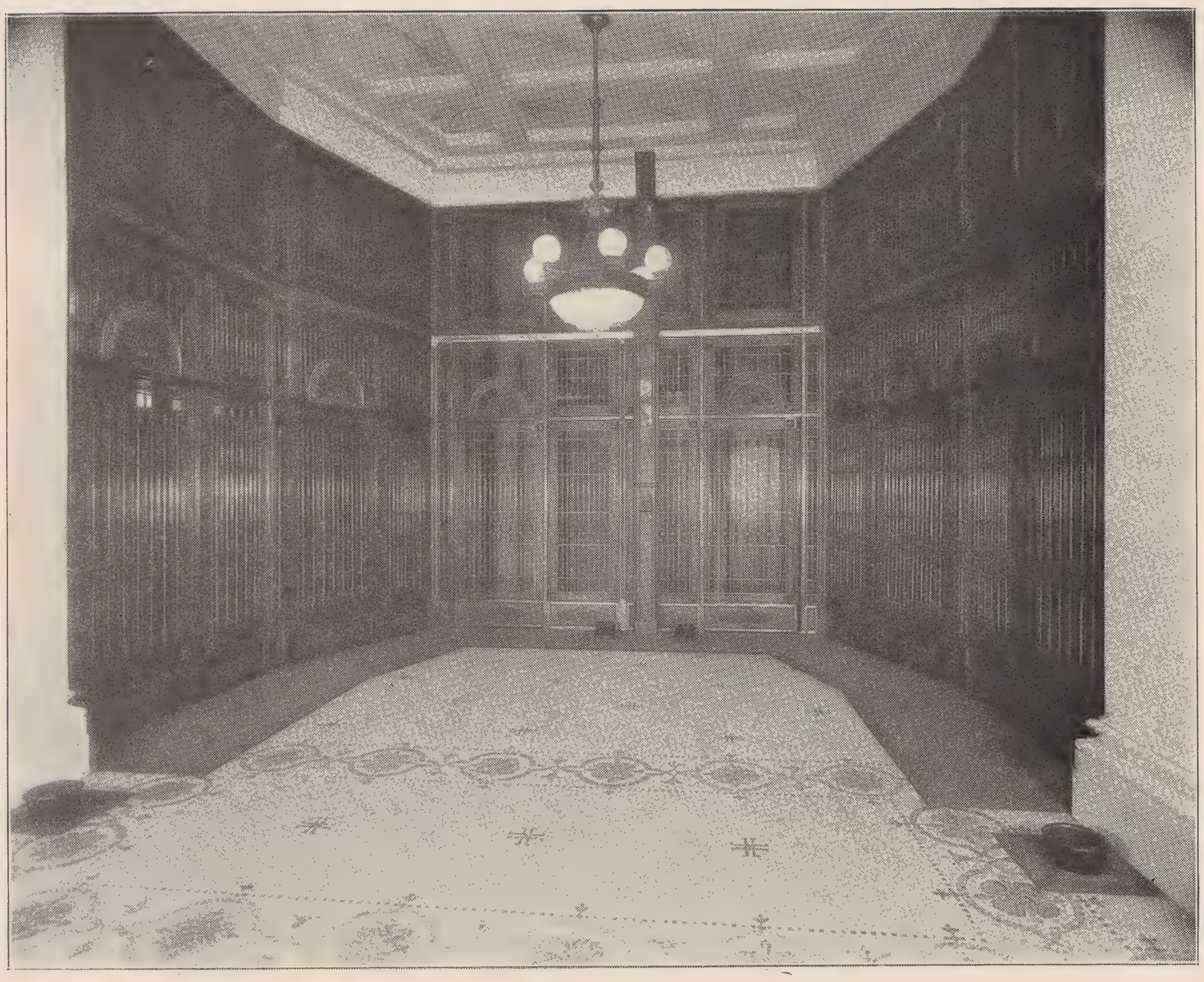
White enameled brick were used for the facing of the Merchants' Loan and Trust building on the rear court and the general effect of this treatment, extending as it does from top to bottom of a twelve-story building and all around the wings, must be seen to be appreciated. It is absolutely cleanly, which is the first characteristic to strike the observer, and is very light, a feature which is equally striking. These two qualities are so invaluable that they outweigh any considerations of location in the mind of a tenant, but when it is considered that the courts are comparatively quiet as contrasted with the streets, and that the original cleanliness of the brick may be maintained by ordinary washing, it is readily seen that the clean, light and quiet court offices are far more desirable than those fronting on the grimy, dirty, noisy street front.

So desirable has this treatment proved to be since it was introduced a few years ago that the Tiffany Enameled Brick Company,



LIGHT COURT, WHITE ENAMELED BRICK.

of Chicago, which furnished these bricks for both the court above mentioned and for the facing of the vaults in the safe deposit department of the bank, is devoting its entire time to this branch of brick manufacture. Their material is also being extensively used not only for the above purposes, but for the fronts and exteriors of office and other buildings, as is exemplified by their use in the Tribune building, in Minneapolis, Minnesota, and in our own city in the new Christian Science church, at Washington boulevard and Leavitt street. A semi-dull finished enameled brick, in various shades and colors, is specially manufactured for front purposes, and an inspection of these fronts will prove a genuine surprise to the architect who has never before seen the effect produced by clean, colored, enameled brick on a city front. The expense of this construction is not a bar to its use, as the cost for bricks of suitable sizes, laid in the wall, runs only from 33 to 43 cents per square foot.



SECOND FLOOR—BRONZE ELEVATOR ENCLOSURES.

BANK AND SAFE DEPOSIT WORK.

The safe deposit vault boxes in the Merchants' Loan and Trust Company building safe deposit vaults were furnished by the Herring-Hall-Marvin Company, being 4,006 in number. They are of special design and were made with a view to embodying every perfection possible in this line of manufacture. The exterior finish is a radical departure from anything that has ever before been attempted, in that the face of each door is covered by a solid bronze plate, handsomely ornamented, and having a stamped number thereon.

Each safe deposit box is secured by a lock of special design, known as the Herring-Hall-Marvin Safe Company's standard

safe deposit master-key lock. This lock is susceptible of forty-five thousand changes. In other words, an outfit of forty-five thousand safe deposit boxes could be furnished with locks and no key would fit any two boxes. The same careful and intelligent workmanship is to be seen in the trust department of the bank, where

GENERAL VIEW OF ENTRANCE TO GREAT VAULTS, GUARDED BY DOUBLE SET OF BRONZE GRILLES.

this company furnished a magnificent burglar-proof vestibule, and also a burglar-proof coin safe and other fittings. Each of these fixtures is the best of its kind. It is noticeable that the safety deposit boxes, for example, are each fitted up with a substantial interior tin case of approved design and workmanship.

This splendid equipment is given a magnificent setting in the vault itself, which is all that a "strong box" of this character should be. We find the main facts in regard to its construction to be as follows:

THE SAFE DEPOSIT VAULTS.

Vault construction has reached its acme in the Merchants' Loan and Trust building. The details of design and workmanship deserve more than passing attention in this connection. The safe deposit vault in the basement is entirely isolated from the walls or supporting foundations of the building, occupying a central space with a walk all around it. The foundation extends below the water-level and consists of alternate layers of steel rails and concrete, which is impenetrable. The supporting capacity of the foundation is fully equal to the great weight imposed upon it, and would be entirely unaffected by any possible settling of the building, resting on its own foundation as it does.

The body or sides of the vault are formed of four layers of 1-inch plates, making an entire thickness of four inches; two of these plates are of chrome steel, carefully tempered and tested, and absolutely impenetrable by tools. The other two plates are of homogeneous steel, which offers the proper resistance against explosives. The corners and ends of the vault may be said to be absolutely without joints, since the plates are first bent to the required shape and size and are then welded into position. Where two plates join they are fitted to each other and held together by 1⅛-inch drill-proof machine screws. All crevices between plates are filled with an oil cement, the screws are then drawn tight, compressing the cement, making the vault both air and water proof.

INTERIOR VIEW OF GREAT VAULTS, SHOWING THE SAFE DEPOSIT BOXES.

GENERAL EXTERIOR VIEW OF MERCHANTS' LOAN AND TRUST COMPANY BANK BUILDING.

FLASH-LIGHT PHOTOGRAPH OF INTERIOR OF MERCHANTS LOAN AND TRUST CO'S BANK WHILE IN FULL OPERATION, SHOWING DETAILS.

VIEW OF MECHANISM OF OPENED DOOR OF THE GREAT SAFE DEPOSIT VAULTS.

The vault has two entrances, thus providing for perfect ventilation, rendering a lock-out impossible. Each entrance is protected by a double set of doors, an outer door and a folding inner door — having a combined thickness of twenty-two inches of solid steel which must be penetrated before access can be gained to the interior vaults. Each door is a solid piece of steel and weighs seven tons, yet so perfectly is it balanced on its ball bearings that it moves with comparative ease. The entire vault is a marvel of scientific design and mechanical perfection.

FIREPROOFING.

More than usual care has been given to the details of the fireproofing used throughout the Merchants' Loan and Trust building. This is especially so with regard to the construction of the floors, this being the first office building erected in Chicago where 16-inch depth of floor arch construction has been built. In the general arrangement of steel framing, 15-inch steel beams were used for the girders and also the beams, all framing flush top and bottom. The soffits of all beams and girders were protected with 2-inch thick hollow tiles secured to the beams with dovetail joint, supported by abutment tiles on each side of the beams. The tops of the floor arches were finished one inch below the top of the steel beams, thus allowing opportunity for the floor strips to be securely fastened to the top flange of the steel beams. All the floor arches throughout this building were of porous terra-cotta fireproof material laid in place on the "end construction system," that is to say, with the hollows of the tile set at right angles with the direction of the beams, thus bringing every sectional inch of the tile in compression between the bearings. Portland cement mortar was used for setting these tiles. The work was carried on during the most severe winter weather, while heavy rains and frosts alternated during the execution of the work. In many cases the tile arches were frozen solidly in position, but the character of the material employed resisted all the injurious action of the elements, and when completed was found to be perfect in every respect.

Porous terra-cotta tile was used throughout the entire building for the partitions, furring, fireproof covering of columns, and also the segmental arches of the roof. Three-inch thick tile securely anchored in place was used to fireproof the steel columns, and the same thickness of partitions were used for the cross-walls dividing the offices. All the main

VIEW SHOWING PRIVATE ROOMS IN CLOSE CONJUNCTION WITH THE GREAT VAULTS.

corridor walls and walls around stairways, elevator shafts, wire chutes, etc., were built of 5-inch thick porous tile.

The entire work throughout was most thorough in every particular, and it can well be said that the Merchants' Loan and Trust building, as it stands today, is probably the most complete and thorough up-to-date fireproof building in America, and was accomplished by E. V. Johnson Company, 84 Hartford building, Chicago.

OFFICES OF BREWSTER & CO.

Mr. Edward L. Brewster, the founder of the firm of Edward L. Brewster & Co., arrived in Chicago in 1860, entering the banking-house of Edward I. Tinkham & Co. From that time he has been identified with the banking interests of this community.

The business of Edward L. Brewster & Co. was established in 1876, since which time it has proceeded by slow and steady growth to a position of first magnitude in its line. Their methods have ever been of the most conservature nature, and their clientage embraces the best of Chicago's business men and investors. Their new offices are equipped with all the best modern appliances for conducting the business of stock and bond brokers, having exclusive wires to all the leading stock exchanges, with quotations constantly on file and a well-stocked financial library at the disposal of investors. A cordial invitation is extended to the latter to make use of the same.

PRIVATE OFFICE OF EDWARD P. RUSSELL, OF EDWARD L. BREWSTER & CO.

Mr. Brewster has been a member of the Board of Trade since 1873, of the New York Stock Exchange since 1881, and was one of the principal projectors and charter members of the Chicago Stock Exchange, being its president in 1891-2.

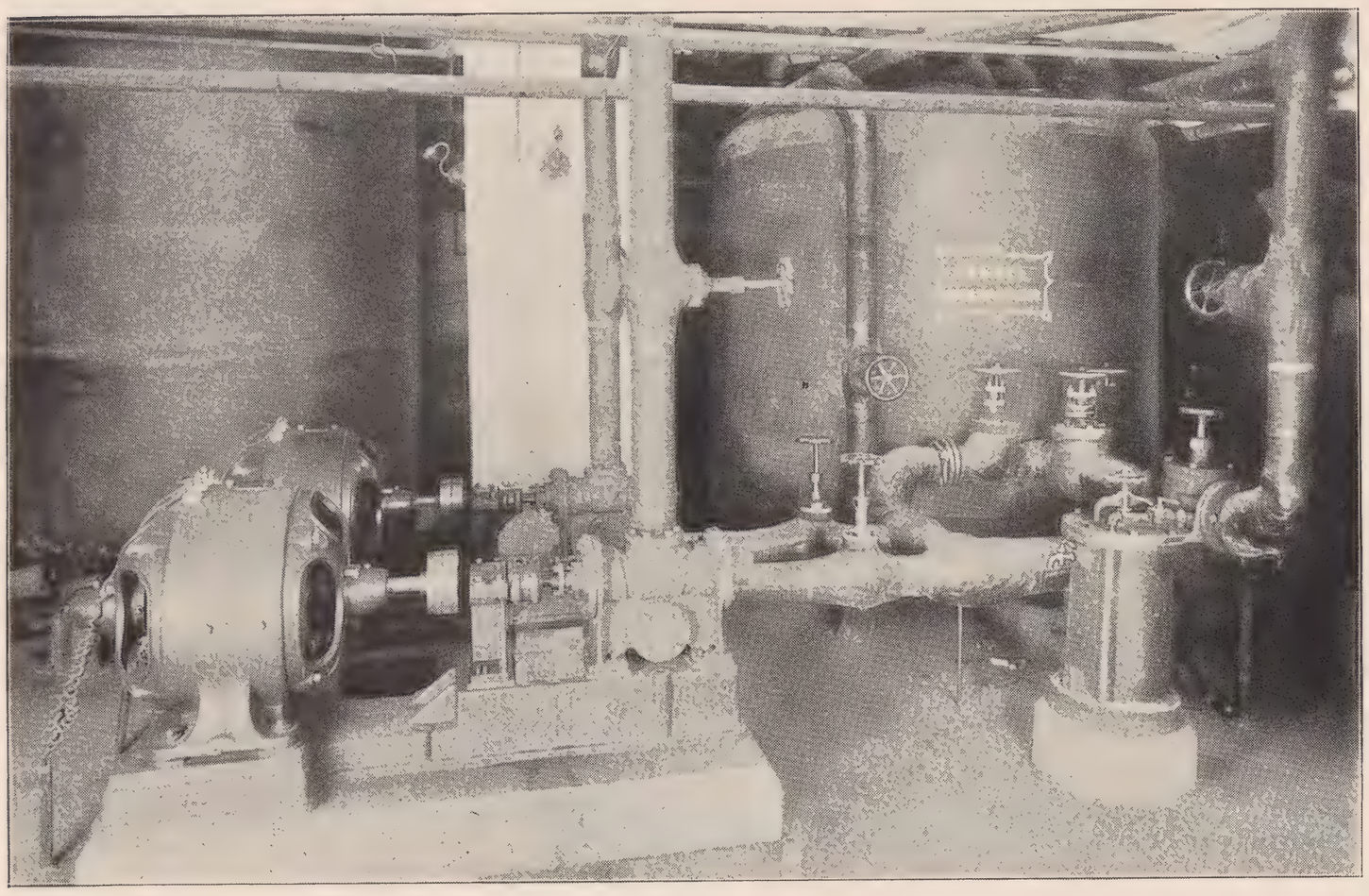
The firm is composed of Edward L. Brewster, Edward P. Russell and Walter S. Brewster.

GENERAL VIEW OF CUSTOMERS' ROOM, OFFICE OF EDWARD L. BREWSTER & CO.

SCREW PUMPS.

The water for service throughout the entire building is forced to the roof by two Quimby electric pumps. These pumps are of the well-known Quimby screw pattern, each being direct-connected on one base to a 3-horse-power General Electric motor, compound wound, 1,150 R.P.M.

The capacity of each pump is 2,000 gallons an hour against the head of 130 feet which the building requires. This head is considerably reduced by the city pressure against the suction side of the pump, which, in the screw pump, has its full value in assisting the lift, and so accomplishes a saving of power.



WATER FILTER AND SCREW PUMPS, PURE WATER SUPPLY.

The suction of the house pumps mentioned comes directly from the Jewel filter and the discharge is a three-inch pipe direct to two 2,000-gallon tanks in the attic. In each of these tanks is placed a copper float connected by a chain to a gravity float switch placed on the wall near the tanks. These float switches, in turn, are connected by electric wires to the automatic pump-starters on the switchboard in the engine-room. These connections make the pumps entirely automatic in action, stopping and starting so as to maintain any required level in the tanks.

The pumps are especially noticeable for their compact form, requiring over all only an area of 48 by 24 inches for both; their small power consumption and their absolutely quiet operation, it being difficult to tell that they are running when standing beside them. The absence of shock or vibration transmitted up the discharge pipe is also a valuable characteristic.

The cost of operation is reduced by two features in the Quimby pump which do not apply to any pump of the plunger type: First, the assistance received by direct connection to the city pressure mentioned above; second, the fact that in the rotary type of pump the current required to start the pump is very much less than that required to start a plunger pump, where the inertia and fixed friction is very much greater.

WATER FILTER AND SUPPLY.

For a building of this size a water filter of forty thousand gallons daily capacity is a necessity. Modern construction demands that every detail like this be attended to in the plan and construction. Especially does pure water contribute to the comfort, convenience and health of the tenants. But it must be filtered only in the most effective machines of this class, and it has been found that a combination of sand and alum for filtering purposes is the only thorough and reliable system. Its simplicity is its value.

The Jewell water filters were used in this building. They depend on the coagulating power of alum and the filtering quality of quartz sand, and they not only remove all deleterious matter from the water but they are capable of being cleansed thoroughly and quickly by a simple reverse of the current of water. The filter is attached to the water supply system of the building, so that there is a constant flow of water through it, either into the storage tank or to the faucets, where it is drawn off as it is used. At night the flow is reversed for a time to cleanse the filtering material, the impurities in which are carried off into the sewer.

The water enters the filter at the top and is there mixed with a certain proportion of alum in solution, which coagulates or unites the impurities, thus rendering it impossible for them to pass through the sand, as some of the minute particles would do if not joined with other particles by coagulation. The water then passes through the quartz sand, which is imbedded in the filter like solid rock, while the impurities and the alum remain to make an insoluble coating on top of the filtering material. None of the alum is to be found in the filtered water, but on cleansing the filter each night it is found that the alum and impurities pass off to the sewer together. In the cleansing process, the water is admitted at the bottom of the filter and passes through the sand in a reverse manner and washes out all foreign substances. All that is required to accomplish this is a simple reverse of the current of water.

The Jewell filters have been installed in many of the largest and best office buildings in this country and have given excellent satisfaction. Their crowning characteristic is their facility of being cleaned, not only on the surface but all through the filtering material, and at frequent intervals. The Quimby screw pump forces the water through the filters.

VIEW OF BATTERY OF BOILERS FOR HEATING SYSTEM.

RESOURCES OF ELECTRICAL POWER AND LIGHT SERVICE.

In this building, as in every large office building, one of the questions to be solved was that of providing for heat, light and power as required throughout the building.

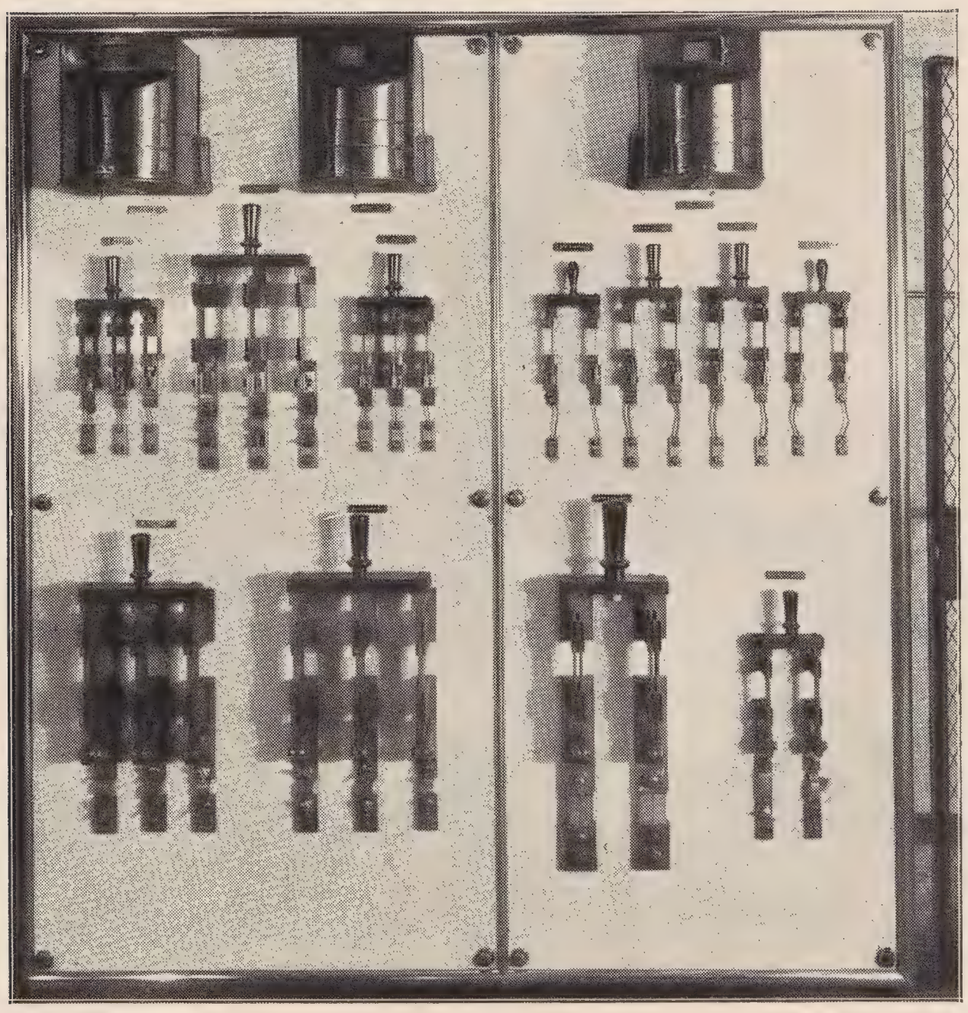
Power is required for five high-speed passenger elevators, one

high-speed combination freight and passenger elevator, one slow-speed elevator in the bank and one sidewalk hoist. It is also required for an ammonia compressor, which provides cold water for the different offices in the building, also a pump for pumping this water as required. There is a vacuum pump used in connection with the Paul heating system. There are also house pumps for the supply of hot and cold water in the building, blowers to be used in the heating system, and an air pump for supplying compressed air for operating the automatic door openers on the elevators. In all there are about 475 horse-power to be provided for. In addition to this there are 5,000 16-candle-power lights in the building, which require over 400 horse-power additional. In other words, there is a total of about 900 horse-power to be provided for.

The old method of handling this problem was to put in engines and dynamos for the lighting and to run the various kinds of power in the building by means of steam. The modern system, as exemplified in this building, provides electric motors for every class of power in the building. In other words, the entire system, both for power and light, is run by electricity.

After electricity had been decided upon, there was still another question, and that the source from which electricity should be provided. To install a 900-horse-power plant, with its reserve engines and dynamos, would require not only a large outlay of money, but would take up a large amount of valuable space in the basement. This large outlay in space and machinery would have to provide for the maximum load, which usually occurs about the latter part of December. During the summer months a large part of the investment would lie idle, making a heavy cost for interest and depreciation throughout the year, outside of the expense for running the plant. It was therefore thought best by the owners, acting under the advice of their engineers and architects, to make a contract with the Chicago Edison Company, according to which the owners pay for all light and power used in the halls and public portions of the building, while the tenants pay for the light in their own offices. On entering the basement one is very much impressed with the simplicity and cleanliness of this arrangement. Most of the basement is occupied by the safe deposit rooms and vaults belonging to the bank, and only a small section at the west end provides for the low-pressure boilers used in heating, besides the pumps, etc., which are run by electricity.

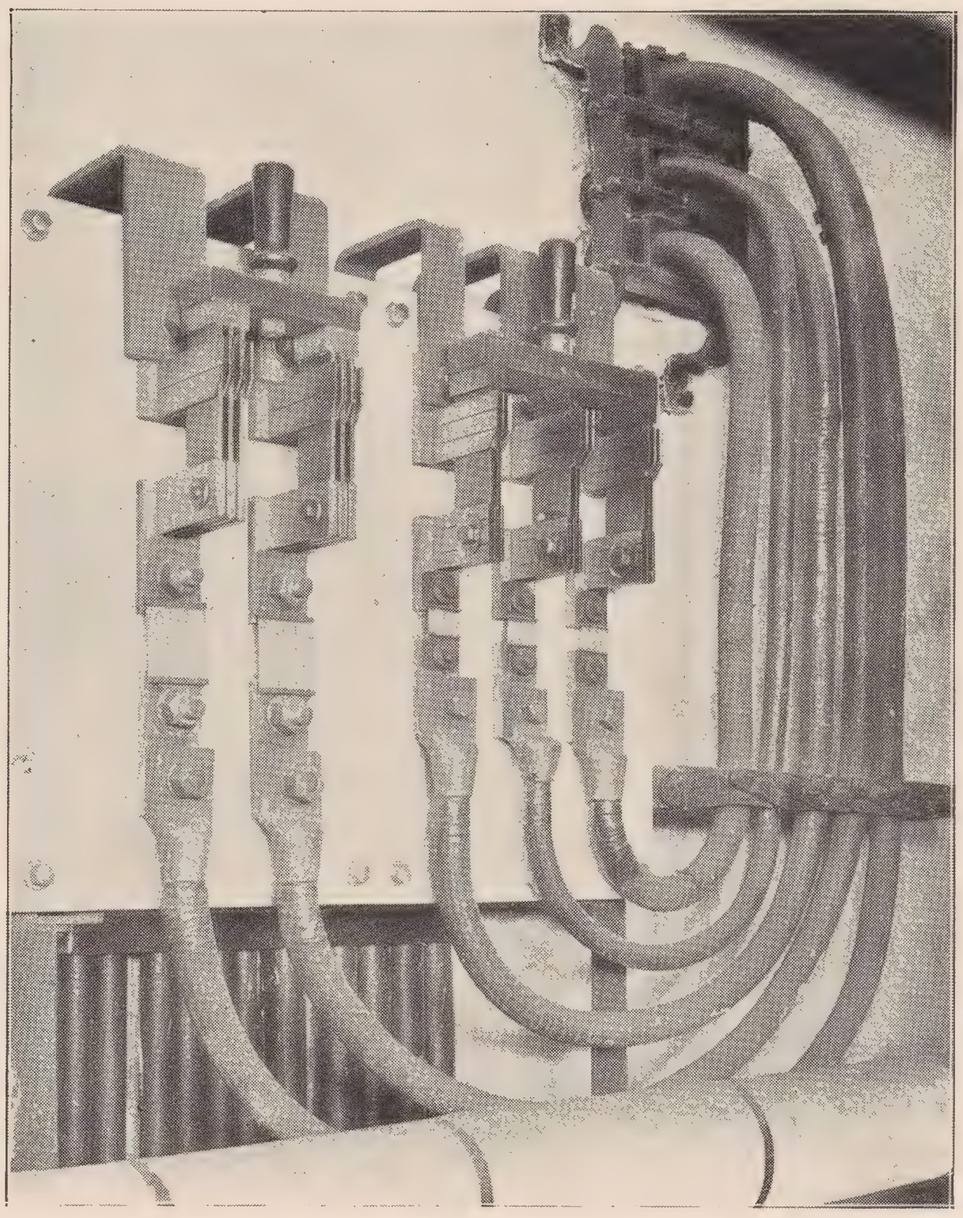
As far as the apparatus for providing the power is concerned, we find simply two switchboards, one about 6 by 5 feet, on which are mounted the switches controlling the various feeder systems



ELECTRICAL SWITCHBOARD.

in the building; the other, about three feet square, on the west wall, on which are mounted two main switches, one a triple-pole knife-switch supplying electricity for light in the building, and the other a double-pole knife-switch supplying current for the power. This service board is supplied by feeders which come directly from the main distributing center of the Edison building, next door, and the service therefore is as reliable as anything that could possibly be provided. It is not only supplied by the two large stations of the Edison Company, one at Harrison street and the river, and the other at Washington street and the river, but also is backed by a large electric storage battery in the Edison building adjoining.

Most of the motors in the basement are supplied with automatic switching devices. Where motors are used for compressing air, they are controlled by switches which are automatically



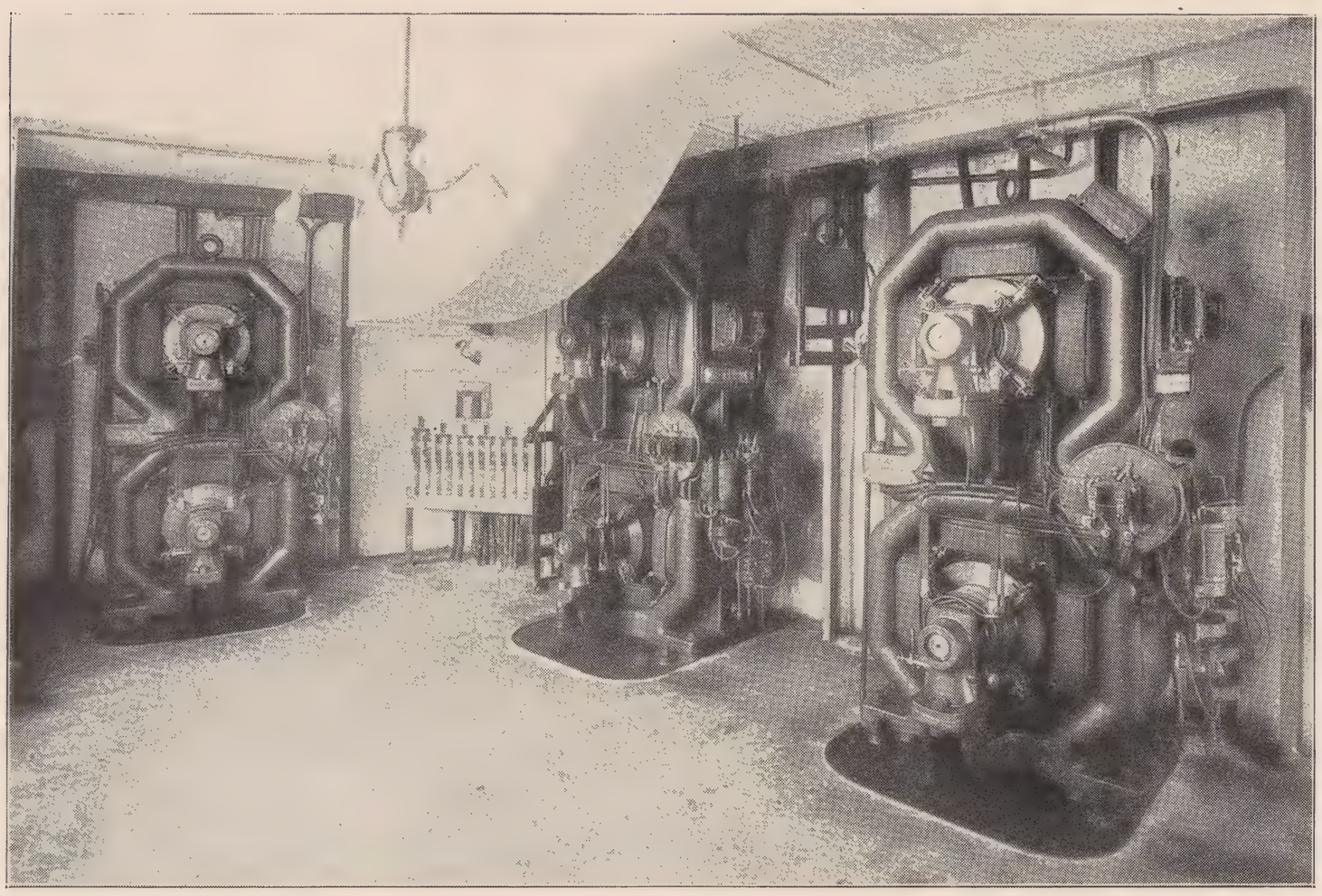
ELECTRICAL POWER CONDUCTORS, FROM THE CHICAGO EDISON CO.

thrown in circuit when the pressure in the tank falls below a certain point, and are thrown out of circuit when the pressure reaches a certain point. The motor used in operating the house pump is operated by a switch controlled by a float in the tank, and so on. In this way the entire plant is kept running at a minimum expense, and at the same time requires but little attention. The only portions of the equipment which require the engineer's attention are the electric motors to which we have referred, and also four boilers which are located in the basement near the sidewalk, and which are operated at low pressure, being used exclusively for heating.

The space directly above the boiler-room is rented to a first-class tenant, who probably would not have been secured if it had been necessary to run boilers with high-pressure steam all summer directly underneath, with the additional noise coming from a plant of engines and dynamos. There is also the further satisfaction of knowing that there is no danger of explosion from these low-pressure boilers. The danger from high-pressure boilers has been very vividly exemplified by several recent disastrous explosions in Chicago and vicinity, where it was impossible to assign any cause for the explosion. In each case, theoretically, there was no explosion, as no cause was discovered, but practically a large amount of property was destroyed, to say nothing of the loss of human life.

The entire building is wired upon the Edison three-wire system, providing a pressure of 110 volts between the neutral and each outside wire on the lighting mains, and a pressure of 220 volts between the outside wires of the power mains. The tap lines and distributing circuits are all drawn into iron-armored conduit, so installed that old circuits can be withdrawn and new ones inserted at any time. An independent circuit has been provided for every room in the building, so that no matter how the offices may be subdivided or grouped, each tenant will be on an independent meter. By this arrangement each tenant in the building has his own meter and pays for just the light he uses, an arrangement which is very satisfactory to the tenant and at the

same time relieves the landlord from the care and annoyance connected with the furnishing of lighting service and adjusting the compensation for same. The meters are the well-known Thomson wattmeters, which give a direct reading on the dials and which can be easily verified at any time by the consumer.



ELEVATOR MACHINERY — ELECTRICAL.

While the building has only been in operation for about eight months, it has been long enough to give a thorough trial of the electrical equipment, with a result that is believed by the architects and owners to be an unqualified success. The cost of operation has been kept down to a reasonable figure, and at the same time the machinery has worked without interruption, so as to give a highly satisfactory service to the tenants.

The system of wires and conduits in the building, as well as the special signals, telephone circuits, wiring for watchman's clock, etc., were all installed by the Chicago Edison Company. This company has secured a high reputation for first-class electrical construction, and in view of the fact that it was to furnish the current, it was thought especially advantageous that it should assume the responsibility of the proper arrangement of the wires and feeders for this purpose. A good many items, such as cabinets, outlet boxes, etc., are of special design gotten up by the engineers of the Edison Company, and the wiring system may be considered a model installation for that class of work.

HEATING AND VENTILATING PLANT.

This immense heating and ventilating plant was installed by the L. H. Prentice Company, 203-205 Van Buren street, under the plans and specifications prepared by Mr. C. M. Wilkes, M.E., of Messrs. D. H. Burnham & Co., architects.

The steam-heating system is of the low pressure gravity type, the water of condensation returning directly to boilers without the use of any pumps or other mechanisms. A circulation of steam below atmospheric pressure is accomplished by the use of the Andrew G. Paul system, controlled by the Western Paul Steam System Company.

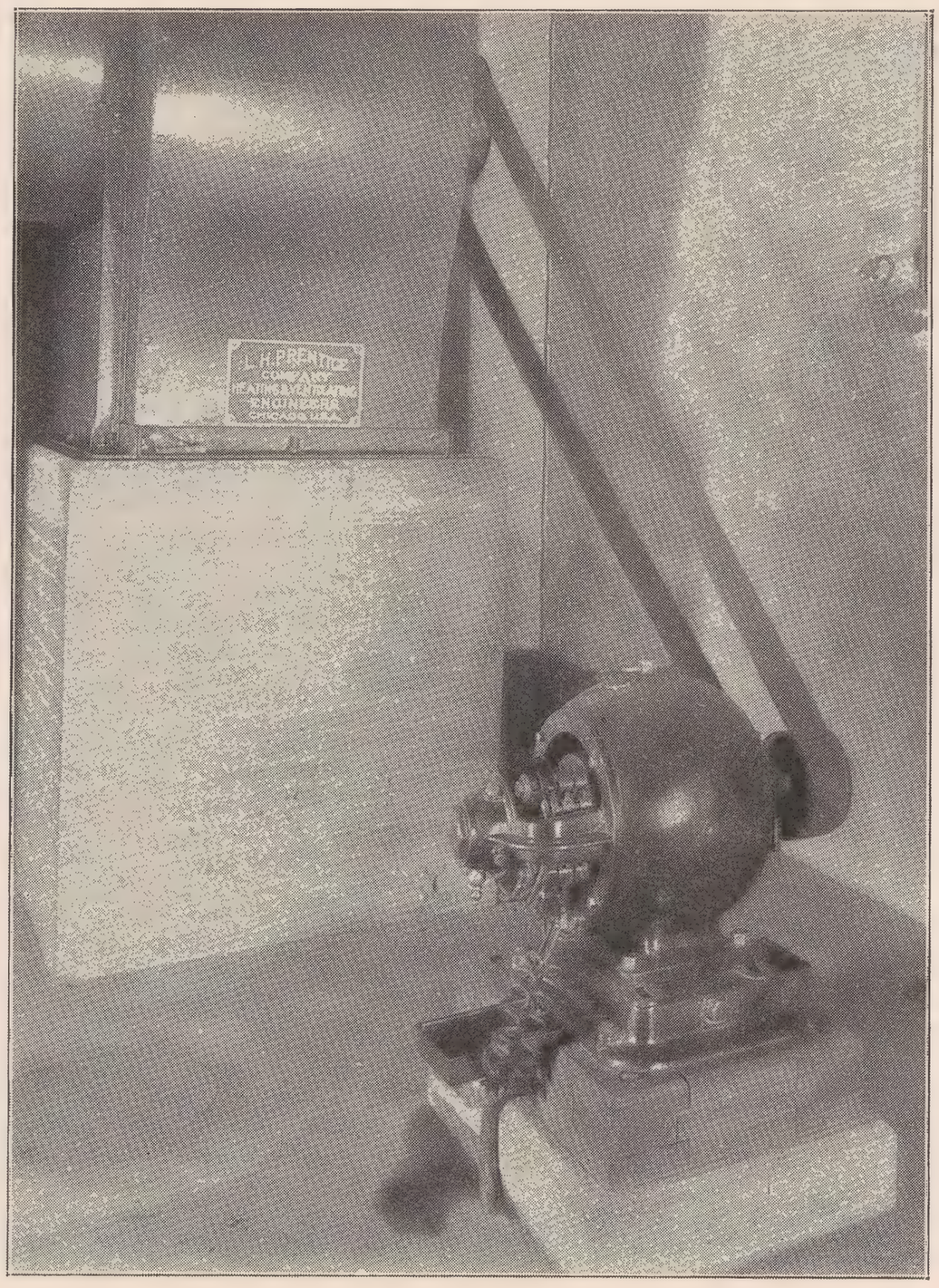
Steam is generated in four large boilers of the locomotive fire-box type, and they not only supply steam to this building, but also to the Edison building and the Chicago National Bank. The boilers are 72 inches in diameter by 92 feet 6 inches long, and are about the largest ever used for a similar purpose in the West. They are of the portable type, manufactured by the Kewanee Boiler Company, and are thoroughly insulated by means of asbestos covering applied on wire mesh in such a manner and of such thickness that very little heat is dissipated in the boiler-room. All of these boilers are cross-connected so that either one or both may be used at the pleasure of the operator.

The system is distributed into three main sections, one section consisting of the pipes supplying the indirect system for heating the incoming air; the second section for supplying the radiators in the offices above the first floor, and the third section for the first-floor stores. In addition to these principal sections there are several subsections. Some idea of the magnitude of this plant may be obtained when it is known that the pipe supplying the radiators in the office is 14 inches. It ascends directly to the attic by means of a pipe shaft, steam being supplied to the radiators on what is known as the overhead plan, by means of distributing pipes in the attic. All of the descending lines are valved, both in the attic and basement, so that any line of risers may be shut off without interfering with the balance of the apparatus. The radiators are connected to the risers on the single-pipe plan, there being but one connection and valve to each radiator. The pipe supplying the tempering coils for heating the incoming air is 8 inches. The pipe for first floor radiators is 6 inches.

A system of air pipes is connected with all the radiators for the purpose of exhausting the air from the system by means of the Poul system, the exhausting apparatus of which is located in the basement and is electrically driven by an electric motor.

Perfect circulation can be obtained throughout all parts of the system at a pressure below the atmosphere.

If all of the pipe in this system was laid in a straight line it would cover not less than six miles. The surface of the radiators, if laid on a flat plane, would cover a superficial area of 32,000 square feet. The radiators are of the Rococo pattern, manufactured by the American Radiator Company.

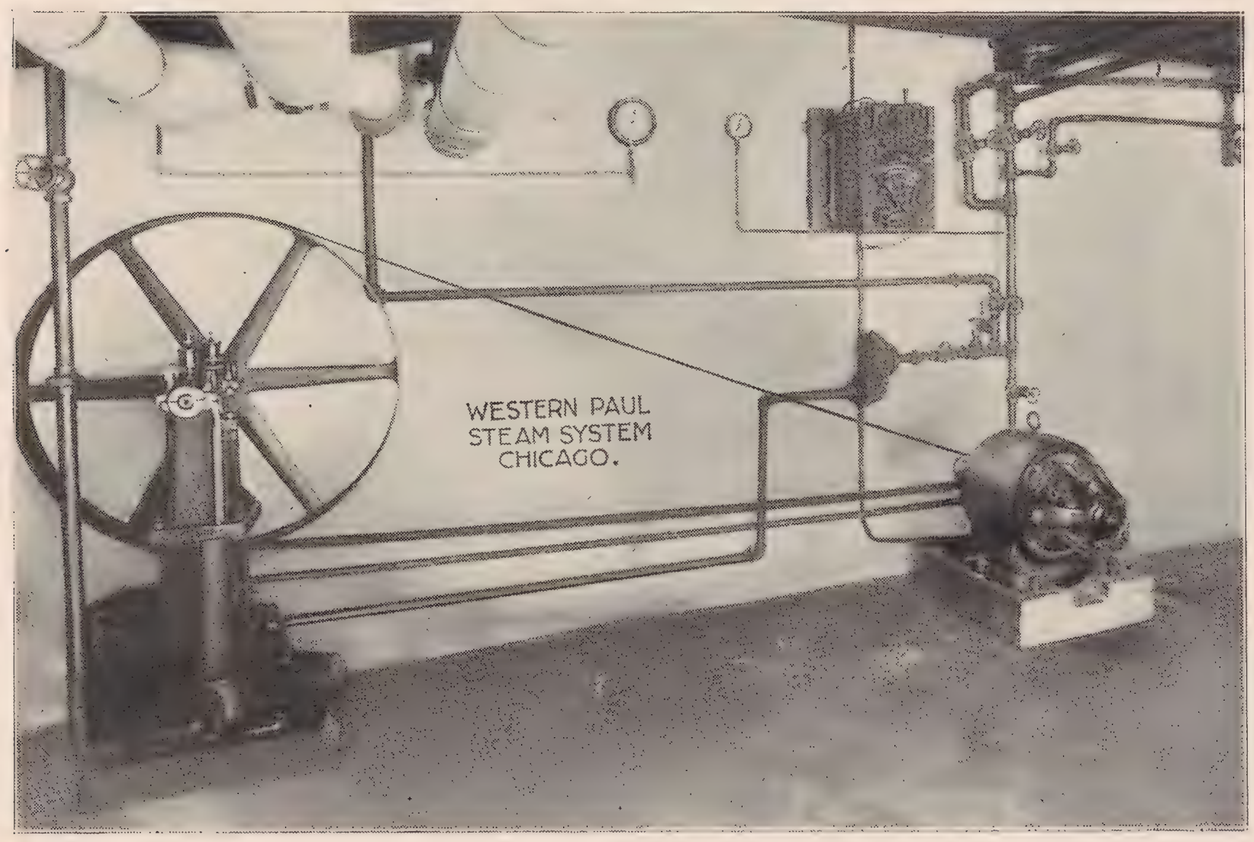


VENTILATING FAN AND MOTOR.

The ventilating system in this building is designed to change the air in the bank, safe deposit vaults and toilet. Both Plenum and exhaust methods are employed, movement of the air being

GENERAL VIEW OF VENTILATING SYSTEM, SHOWING BATTERY OF ELECTRICAL MOTORS, BLOWERS AND EXHAUSTERS.

obtained by blowers and exhausters manufactured by the American Blower Company. All of the blowers and exhausters are electrically driven by motors of the Great Northern make. All of the motors are controlled by the Cutler-Hammer Speed Automatic Regulators. Particular care has been taken to divide the ventilating system into several sections so that the unnecessary use of the electrical current for ventilating purposes is avoided. The air in the bank is changed once every ten minutes, and in the safe deposit vaults once every five minutes. The safe deposit vault chambers have a special arrangement in the ducts so they can be readily connected and disconnected from the ventilating system when in and out of use.



VIEW OF EXHAUSTER AND MOTOR OF PAUL SYSTEM, IN HEATING SYSTEM.

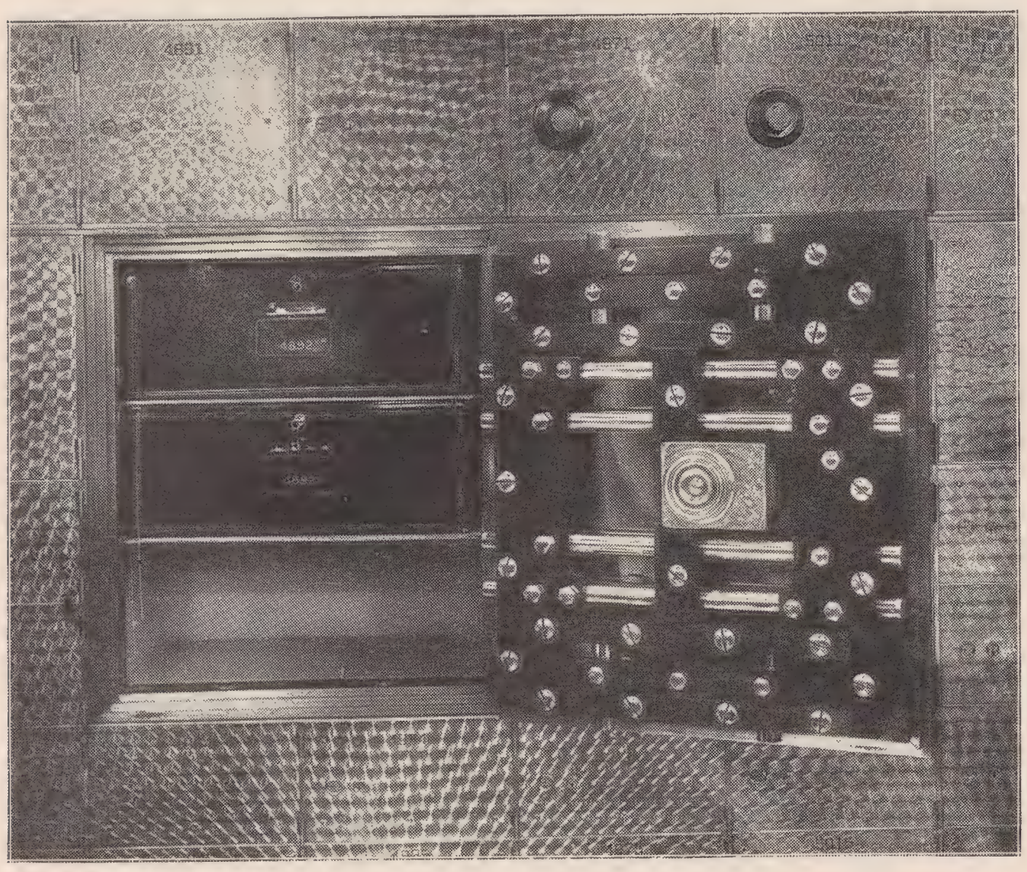
THE WESTERN STEAM PAUL SYSTEM.

For the purpose of securing the maximum of efficiency at the minimum of expense, it is customary in all modern construction to combine the power plant with a heating plant of sufficient size to give satisfactory results at all times, while entailing the least possible expense in its operation. The ideal method of accomplishing this result is to use the exhaust steam from the engines for heating the building, and in the most approved form of this heating system it has been found that the cost of steam production in winter is but very little greater than in summer. In other words, the ordinary exhaust steam is sufficient to heat the building without imposing any extra burden on the power plant except in the severest winter weather. The system whereby this very desirable result is accomplished is known as the "Paul system," and uses the steam at a pressure not above that of the atmosphere itself.

The old theory, that steam must force its way wherever it was desired to have it circulate, has been effectually exploded by the practical application of the new system of steam heating. We say new system, but, as a matter of fact, this system has been in successful use for several years and has been adopted in nearly all the largest and best buildings in this country. Still, it is new as compared with the antiquated form of steam heating which implies that force is the foundation of a healthy circulation. The Paul system, on the other hand, assumes that the steam should be conducted rather than driven through the pipes, on the principle, possibly, that persuasion is better than force. Be that as it may, it has been found that steam will do quite as it is asked to do when the conditions are right, and that the best results are obtained by first providing the proper environment.

So in the modern plan, the entire series of pipes and radiators

are first relieved of the air and gases which would otherwise prevent free circulation, and which, in the ordinary steam-heating plant, are responsible for the pounding, the cold ends of radiators and the leakage of dirty water and foul gases with which nearly everybody is familiar. All this is done away with by having the air pipes comparatively tight and by removing from them air, gases and water before the steam is admitted. Instantly the steam rushes in to fill every nook and cranny of the system, without noise or leakage or odor — at the highest efficiency as a heating agent and with the least possible expenditure of energy in circu-



DETAIL OF ONE OF THE SAFE DEPOSIT VAULT BOXES.

lation. All "back pressure" on the engine is obviated, for the steam is only too eager to rush into the partial vacuum created by the withdrawal of the air from the pipes and radiators. And as the steam condenses the circulation is maintained in exact proportion to the condensation and at exactly the point of greatest need, the secret of this being the constant automatic removal of the air.

It is the simplicity of genius — a theory reduced to practice in perfection. In the Paul system we have an entirely self-contained heating agent, which does its work with absolute accuracy of result and with the least possible obtrusiveness — asking no favors save the continuance of suitable scientific conditions. In steam heating, as in everything else, the right way is the best way.

The old theory that steam must be circulated at a high pressure to obtain the best results, has been dissipated by experience. It is now recognized by the best authorities that the least pressure gives the largest heating capacity. The highest expert authorities have made special investigation of the subject and say that steam circulated at or below atmospheric pressure will give an economy of from fifteen to thirty per cent over steam circulated at from three to five pounds pressure above the atmosphere. The reason is obvious. No agent will do its work as effectually under pressure as it will under the most favorable conditions.

In actual practice this system has been found to be all that its designers have claimed for it and more. As an economy in the operation of the power and heating plant it especially commends itself to architects and owners. Many instances can be given where a plant of this kind has paid for itself in three years in the economies it has effected over the ordinary system. The loss of one cent's worth of exhaust steam per minute amounts to the astonishing total of $1,080 during one heating season, or five per cent on $21,600 of invested capital.

Having explained the use of this system in connection with combined heating and power plant, circulating steam at or below atmospheric pressure throughout the heating system, the reader may have inferred that this is the only adaptation of this system; such, however, is not the case, as this system can be used in connection with heating plants which are supplied with steam from low-pressure boilers as installed in this building.

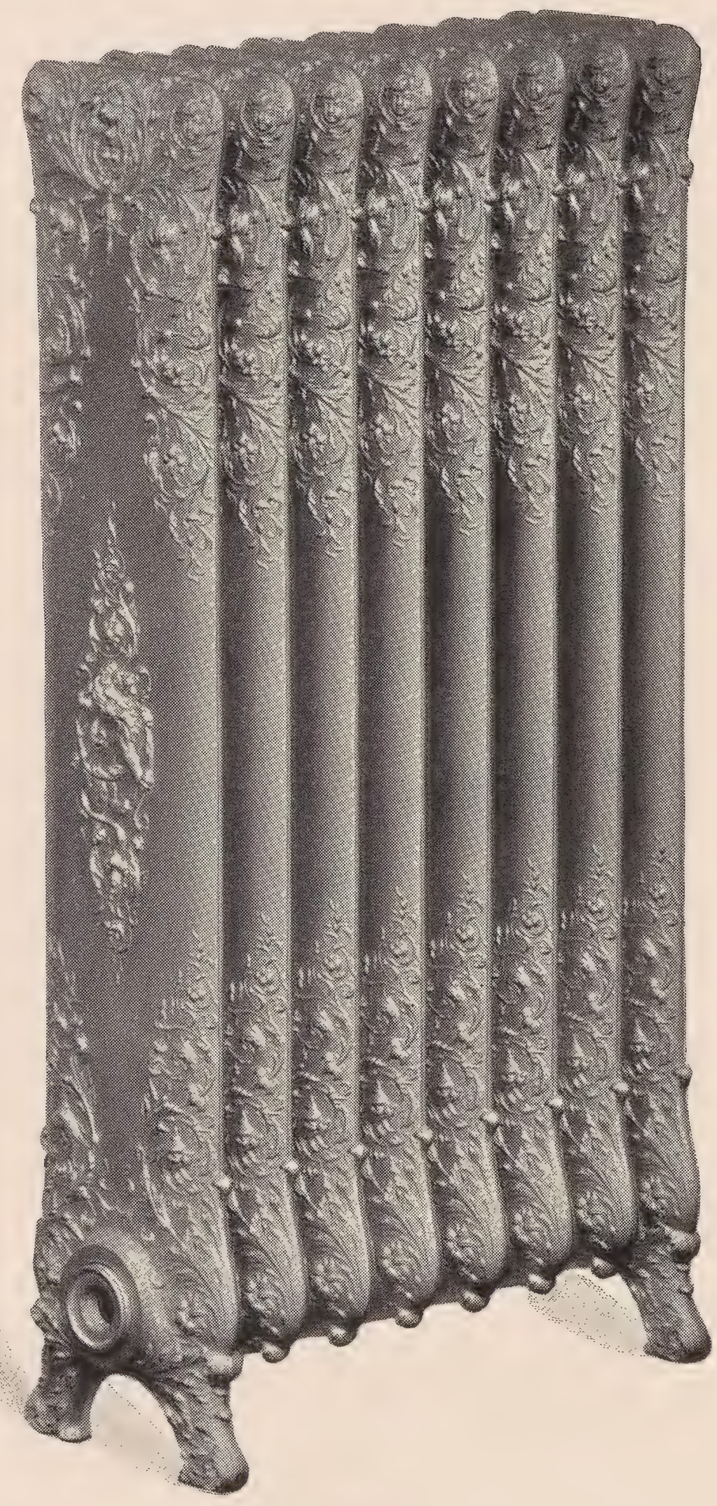
To successfully operate the system in connection with low-pressure boilers, the exhausting apparatus may be driven by a small electric motor located at a convenient point in the boiler-room.

The automatic air valves, instead of opening into the rooms, are connected with pipes leading to the exhausting apparatus. After the air has been drawn out of the pipes and radiators the steam is admitted, and the heat closes the automatic valves on the radiators. The system provides also for the removal of air which subsequently collects from the condensation of steam, and thus the plant is kept at all times at its highest efficiency as a heat distributor.

THE RADIATORS.

The design, construction and general disposition of the radiators in the Merchants' Loan and Trust building affords an effectual demonstration of the possibility of making these important accessories to the heating system quite as ornamental as they are useful. A radiator should not seem out of place or intrusive, even though it be not actually in service as a heat distributor. It must, therefore, be so designed as to give the greatest efficiency while occupying the least space, and it must be ornamental also, else it will be an eyesore, especially during the summer months. To any one who has seen the radiators of the American Radiator Company as installed in a great building, it is not necessary to explain the arrangement and construction by which this system has been brought to perfection. The modern radiator is an ornament, insomuch that, without one, any room would seem unfurnished.

The radiator, under this artistic and intelligent treatment, is no longer the inflexible and arbitrary creature it once was, for it can now be adapted to any location or service desired. By skilful construction it is made to stand on the stairway where such position is desirable, or to occupy any nook or corner where it will be entirely out of the way, winter or summer. The usual window radiator is no longer obtrusive, for it has been turned into an



VERONA.

important part of the window furnishings, by low construction, with flat top that may be used for a comfortable seat at pleasure. The settee idea is capable of elaboration in other ways, and is a profitable field for special design.

Similarly the radiator is adapted for a footrest, which its heating capacity makes doubly valuable. The same principle may be applied to other subsidiary heating purposes, as for heating dishes in the dining-room, etc. In fact, the facilities of modern radiator

construction can not be overtaxed in the demand for special design and adaptation. In keeping with the most modern sanitary requirements, the American Radiator Company has introduced the system of supplying fresh air direct from the outside of the building to the coils, where it is heated and circulated, and thus supplies an important element of ventilation.

HEAT REGULATION.

Probably no part of the equipment of this building is of more interest than the apparatus for automatically controlling the temperature of the various offices. The building is equipped throughout with the Powers system of automatic heat regulation, manufactured and installed by the Powers Regulator Company, of Chicago. This system is operated by compressed air, and relieves the occupants of the various offices from the necessity of giving any attention to the steam radiators, the heat being automatically turned on and off from these radiators in such a way as to maintain a uniform temperature in the rooms. Each office in the building is equipped with one or more *thermostats*. This thermostat — a cut of which is here shown — is an apparatus extremely sensitive to temperature changes, and which, placed upon the wall of the apartment, automatically responds to any variation of temperature that may take place in the apartment, and, by means of suitable air connections, controls the admission of steam to the radiators. The thermostat is provided with a means of adjustment which can, however, only be reached with a special key, this key being placed in the hands of the engineer or whoever has charge of the heating apparatus in the building. By means of this key, the thermostat can be set to carry any degree of temperature that may be desired, and once being set for a specified temperature, will maintain that degree of heat in the room under its control, without any attention whatever being given to radiators or steam valves.

The many advantages attendant upon the use of this system will be apparent to the reader. Extremes of temperature are entirely avoided. The occupants of the offices, working as they do in a uniform and proper temperature, are enabled to accomplish more and with less physical discomfort than would be the case if the rooms were subject to the changing temperatures which invariably prevail in offices that are not automatically controlled.

The interior finish of a building like the one under discussion will be more durable and will maintain its handsome appearance much longer when it is not subjected to extreme temperature variations. Variations of temperature such as would prevail if the radiators were operated by hand cause alternate expansion and contraction of the woodwork, with a consequent opening of cracks and damage to the finish, which materially hasten the time when refinishing is necessary.

THE THERMOSTAT.

The steam economy attendant upon the use of this system is a very important item for the owners of the building. Offices that are not equipped with automatic control are almost invariably overheated. To secure relief from this condition, tenants open their windows, so that a vast amount of heat is constantly escaping from the building, and thereby necessitating a useless expenditure of money to supply this heat. In a building equipped, as this one is, with an automatic system of heat regulation, the steam is shut off from the radiators as soon as the rooms are heated to the proper degree; consequently, no overheating occurs and no heat is wasted. An economy of from fifteen to twenty-five per cent in the amount of coal required to heat a building is the usual experience where this system is used.

The Powers Regulator Company, which has offices at No. 40 Dearborn street, Chicago, will be pleased to mail printed matter or give personal explanation to any one who may be desirous of investigating this system of heat regulation. The system is one of really great value to a healthful temperature at all times.

DETAIL VIEW OF CENTRAL HALLWAY, OFFICE OF EDWARD L. BREWSTER & CO.

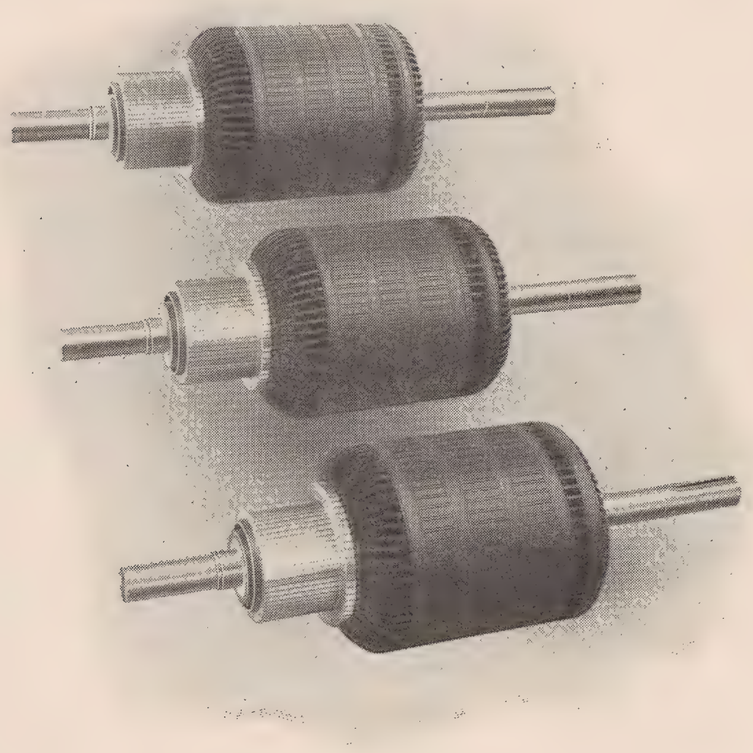
VENTILATION.

The system of ventilation employed in this building is of special design and construction, and embodies all that is most efficient and modern in this important feature of a large building. In brief, it is a system of supplying fresh air by fans and removing vitiated air by the same agencies. The successful working of the system, however, depends upon the arrangement of the fans so as to give to each of the sections of the building a separate service. The capacity of the fans must also be under the control of the operator, for at times a double service is required and then again a very small current of ventilation is sufficient for all purposes.

Blowers made by the American Blower Company are used for bringing in the fresh air and removing the foul air. A duct is provided for supply to the bank floor, clearing-house and toilets; another for the safe deposit vault; one for the basement safe deposit rooms, toilet rooms, barber shop, etc.; corresponding exhaust ducts are provided for each of the foregoing sections. Blowers remove as well as supply the air. The ducts are carefully calculated to the required capacity, and the quantity of air desired is regulated by means of dampers. During the hours of 10 A.M. to 3 P.M., when the bank is busiest, the ventilators for that section of the building are run full force, and afterwards are put at half capacity, thus at all times keeping the air sweet and clean.

MOTORS.

In the Merchants' Loan and Trust building are numerous examples of applied electricity. Probably the most interesting installation of motors in the city are found here. The many machines



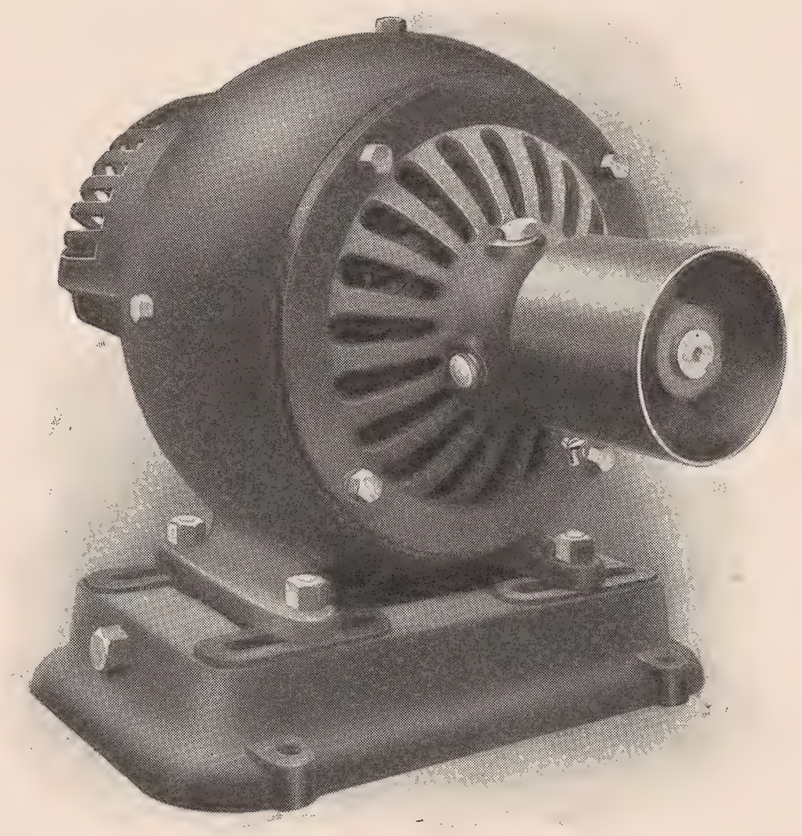
NORTHERN ARMATURES.

throughout the building doing a work of varying character, were designed and built by the Northern Electrical Manufacturing Company, of Madison, Wisconsin. That company's corps of efficient engineers is to be credited with an eminently satisfactory and pleasing equipment of electrically driven machinery.

The motors are remarkably compact and symmetrical; this is due to the spherical type of steel frame which the Northern Company uses. The use of steel instead of cast iron permits a smaller and lighter frame. These are cast in one piece, giving a perfect magnetic circuit, and affording complete protection to the field coils and armature. Large power capacity within small dimensions is of obvious importance where space is valuable and restricted.

The bearings for the armature shafts are contained in brackets or bonnets securely bolted to the motor frame. This is a decided improvement over separate pedestal bearings and contributes a great degree of rigidity and compactness to the machine. The bearings are bronze, spherically seated so that they are self-aligning. A peculiar construction of the bearing by which the bronze and babbitt metals are spirally alternated, serves as an effectual bar to serious damage, even should the oil wells be allowed through carelessness to become dry. Another feature of decided merit is that the motors may be operated either on the floor, a side wall, or a post, or inverted against the ceiling.

These various changes of position may be effected without a change of the terminal connections, or a change of parts except to transpose one bolt and an oil cock on the bearing. In adding new machinery or changing the location of that already in use,

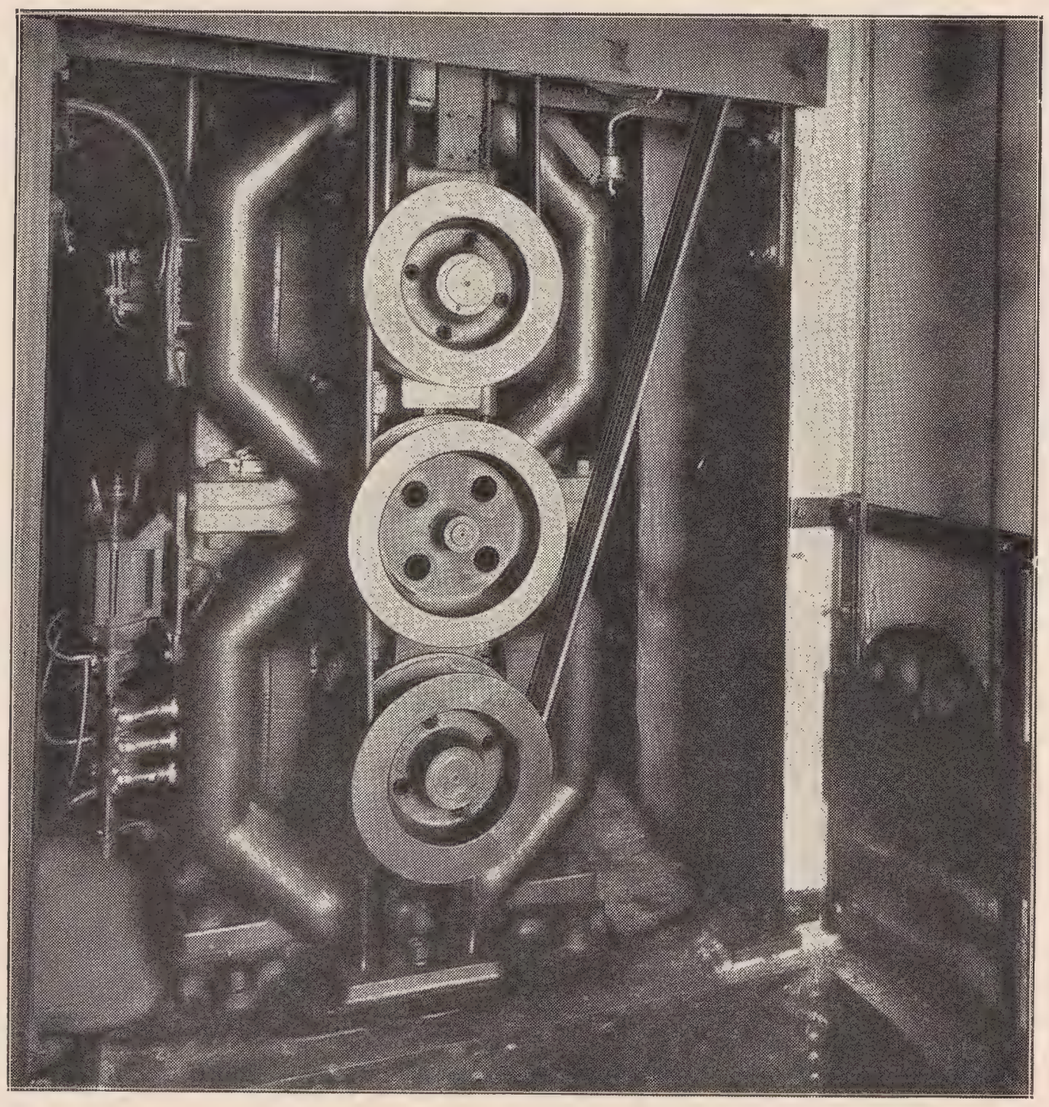


NORTHERN SPHERICAL MOTOR.

it is often necessary to place the motors where they will be the least in evidence and occupy the minimum of space. This, it is apparent, is readily accomplished with Northern motors.

The field coils and armatures of Northern motors are models of perfect design and workmanship. The winding department of the Northern Company is one of the most expensively and thoroughly equipped in America. Special machines designed by their own engineers shape the armature coils so that a dozen picked up at random from hundreds are so exactly alike in form and weight and insulation that an expert can not distinguish them apart. The method of insulation is unique and highly successful, the coils being absolutely impervious to moisture and well nigh invulnerable to any form of mechanical injury. Each coil fits its place on the slotted, laminated core as neatly and perfectly as a die.

The commutator is made of drop forged pure copper segments separated and insulated by india mica carefully selected and cali-



REAR VIEW OF ELEVATOR MOTORS SHOWING CABLES.

brated. After assembling the segments and insulation, the commutator is brought together solidly under hydraulic pressure and effectually and rigidly secured by a special steel locking clamp.

The brush holders will certainly commend themselves to every engineer for simplicity, fewness of parts and an absence of springs, lugs or bolts. Any carbon can be readily and easily taken off and changed, if necessary, while the motor is running. The parts are so proportioned that there is not the least tendency to chatter. This assures a smooth and noiseless running commutator, requiring the least attention and no repairs.

Northern motors are veritable bulldogs for holding on to their jobs or to any load given them to carry. It is not uncommon to find them carrying very excessive loads without the slightest indication of sparking at the commutator and without excessive heating. In fact, we believe this is a part of the guarantee of the Northern Company that every machine will do this. This is a fact that speaks eloquently of superior design and conscientious work.

The base used with Northern motors deserves special mention. In this is contained a belt-tightening device as simple as it is certain and convenient. To move the motor forward or backward, it is only necessary to turn one bolt. The motor can not by any possibility tilt off or break loose as is the case where slide rails are used. When adjusted to the position wanted it can be, if desired, immovably locked there, but is as easily and quickly released again if necessary.

In addition to the regular iron base, the motors in this building are furnished with a special hard maple frame finely finished and rubbed down in oil. This adds materially to the appearance of the installation and is according to plans of the architects and consulting engineer. Planished copper drip pans are also supplied, but from the appearance of the motors and the construction of the bearings, they seem a superfluous trimming.

The general finish of the motors is a fine piece of work. The smoothness of the castings is remarkable, and we understand that this is due to a secret process of pouring steel known only to the Northern Electrical Company.

All of the machines in this installation are painted in coach black and tastefully ornamented with gold stripes. While this finish and gold striping can add nothing to the efficiency and inherent goodness of the motors, it does add to the general appearance of the plant as a whole, and is much appreciated by the owners and admired by visitors.

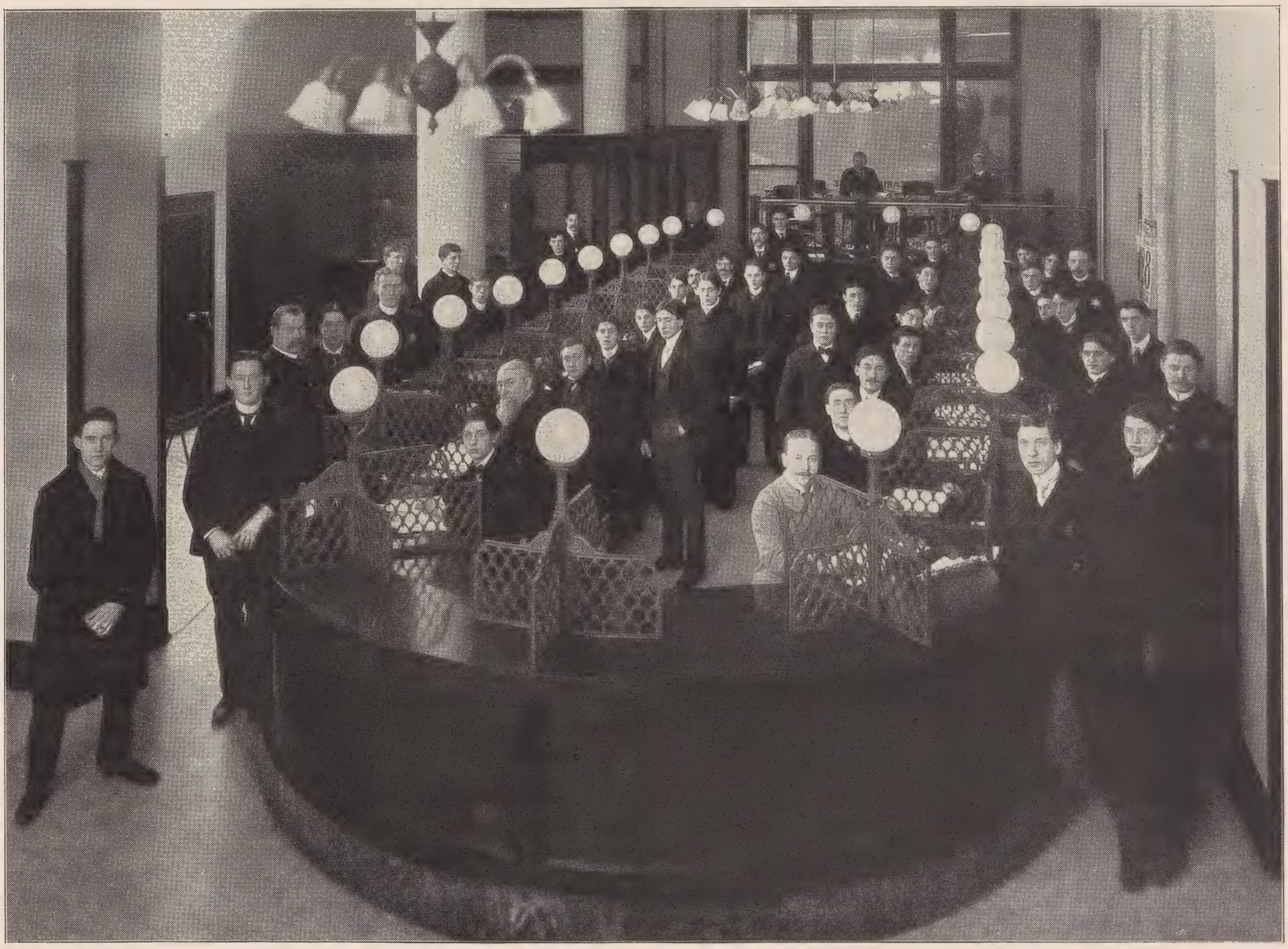
THE PARTITION GLASS.

It has been the study of glass manufacturers to produce a glass which shall give the highest efficiency as a light-diffusing

"MAZE" GLASS PATTERN.

medium and at the same time shall be sufficiently opaque to prevent the intrusion of prying eyes. Such a glass is a necessity in the partitions of office buildings to admit the free passage of light to and from hallways and offices, at the same time shutting off the view of the outsider.

Numerous tests made by Prof. Charles L. Norton, of the Massachusetts Institute of Technology, at the request of the Hon. Edward Atkinson, president of the Mutual Insurance Company, of New England, and in the interest of lighting values, have



FLASH-LIGHT VIEW OF CHICAGO CLEARING-HOUSE.

shown that "Maze" glass, manufactured by the Mississippi Glass Company, St. Louis, Missouri, is the ideal material for this purpose, and that it gives the widest diffusion of light, especially in the bright sunlight. "Maze" glass is of very great value in softening the light, and it is very effective in strengthening the light at distant points. It is brilliant, yet obscure and ornamental, unlike the usual partition glasses, such as chipped glass and others. Looking through "Maze" glass it is impossible to discern figures though reflected by double light, and a room thus becomes private, though lighted with 33⅓ per cent more daylight, as Professor Norton's tests have proved, than with the plain glass. He finds that "Maze" glass is especially effective in small rooms or offices not more than fifteen or twenty feet deep.

About twenty thousand square feet of ⅛-inch and 3-16-inch "Maze" partition glass was used in the Merchants' Loan and Trust Company building. The results are to be seen in an ideal interior lighting. For the inside partitions and transoms ⅛-inch "Maze" was used, and for door lights 3-16-inch "Maze."

INTERIOR VIEW OF CHICAGO & NORTH-WESTERN RY'S CITY TICKET OFFICE.

GRAND TRUNK RAILWAY OFFICES.

The suite of offices fronting Clark and Adams streets on the ninth floor will be occupied by the Chicago headquarters of the Grand Trunk Railway System, the freight, purchasing, advertising and passenger offices each being fitted up with a degree of elegance in harmony with the general policy of this road in catering to the public.

PLASTERING.

In the treatment of the interior walls of the Merchants' Loan and Trust Company building no attempt at novelty was made, but it was desired that the plasterwork and finish should be of the best and that the ornamentation should be both artistic and effective. For this purpose the first requisite was to secure the services of a reliable firm of plastering contractors. The contract was let to McNulty Brothers, of Chicago, and the work done by them is in strict keeping with their reputation as the foremost plastering contractors in this city. In this very important branch of construction there has been nothing left to desire. As to the ornamentation, it is the style of the French Renaissance, and has been favorably commented on by all who have examined it. The use of cartouches for the relief of pillars at their junction with the ceiling, and the general scheme of paneling as adopted, have added real beauty to an otherwise plain if not bare surface.

THE NORTH-WESTERN TICKET OFFICES.

Occupying the corner on the ground floor, with a frontage of forty feet on Clark street and one hundred feet on Adams street, the new Chicago & North-Western Railway ticket office commands attention by reason of the elegance of its furnishings and the perfection of its appointments. In its design and workmanship it is not excelled by any similar office room in this country. The dominant tone is simplicity and elegance. Curves predominate, angles being conspicuously absent. The curved ends of desks, counters, etc., not only present a pleasing appearance but show to best advantage the materials used in the furnishing.

All the woodwork and furniture is of solid mahogany of the rarest beauty. Thousands of pieces have been used in making a selection of special grains suitable for this place. The panels are of unique richness and beauty, many of them being rare demonstrations of the possibilities of wood finishing. Every detail of the work is most conscientiously wrought out — the carvings and finish being the best that money can buy or art produce. Two features of special attractiveness are the immense round-cornered counter and the big bank of settees, the details of which are a study for the woodworker and furnisher.

Other details of finish and arrangement are in strict keeping with the general plan of the room. The counter rests upon a base of Alps green marble and the walls and ceiling are done in peculiar shades of olive which harmonize with the mahogany woodwork. The high wainscoting, although of the same wood, is of a peculiar grain, offering a pleasing contrast to the counter. This is one of the twenty city offices which the North-Western Road has in this country, and this one is regarded as the most elegant of all.

A HISTORICAL SKETCH OF THE MERCHANTS' LOAN AND TRUST COMPANY BANK.

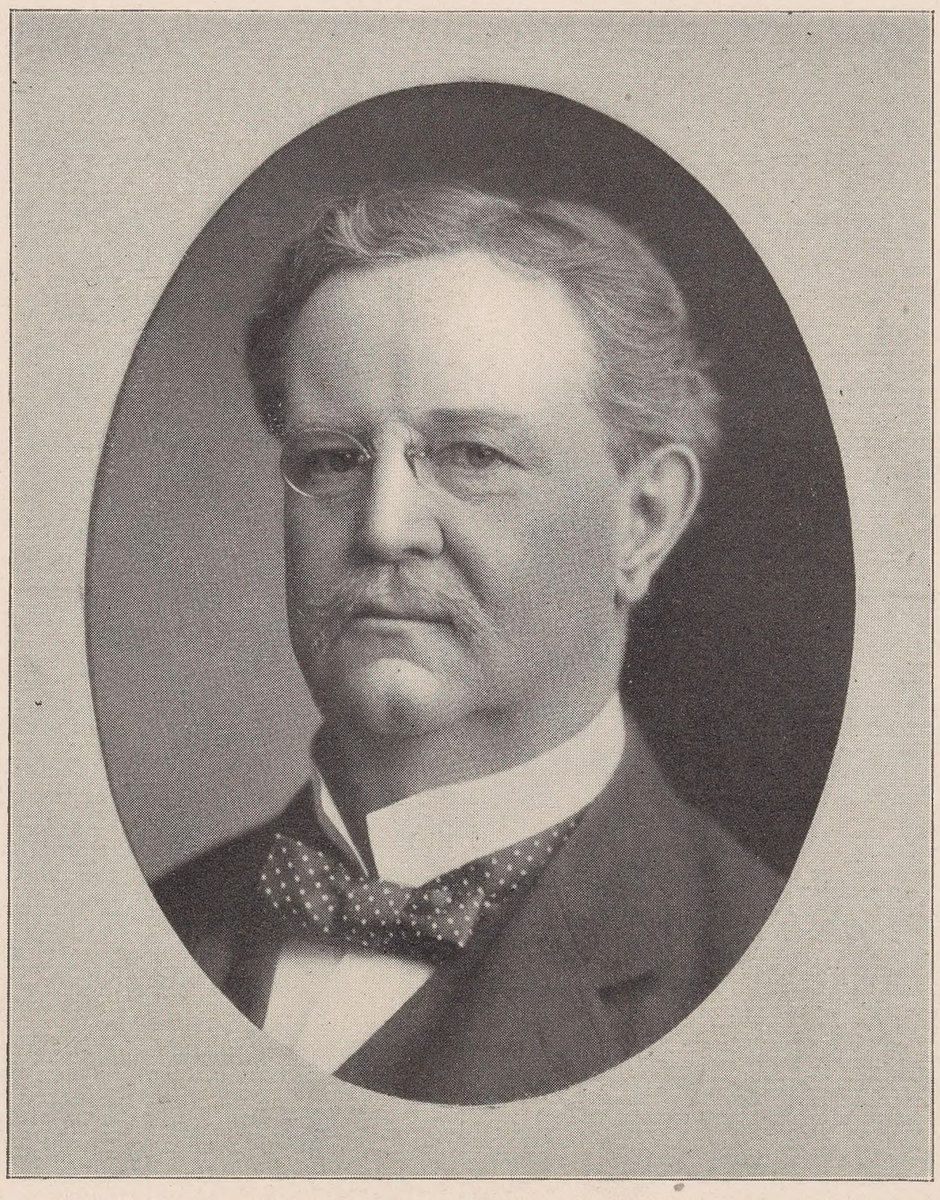
THE Merchants' Loan and Trust Company Bank was organized in 1857, and was originally located at the corner of South Water and La Salle streets, under the Board of Trade rooms. It continued in business there until the spring of 1860, when it removed into the Dickey building at the southwest corner of Lake and Dearborn streets, where it remained until October 9, 1871. Immediately after the fire temporary quarters were occupied in Solomon A. Smith's house on Wabash avenue. The bank remained here until the completion of the Manierre building at the corner of Madison and Dearborn streets, into which it removed in the spring of 1872; having outgrown these quarters it removed, in 1881, to the Portland block at the corner of Washington and Dearborn streets, where it remained until 1900, when it removed to its present location.

The presidents and their terms of office succeeded in the following order:

J. H. Dunham, from the time of the incorporation of the bank, in 1857, until the spring of 1862; Henry Farnam, from 1862 to 1863; Solomon A. Smith, from 1863 until the time of his death, in 1879; John Tyrrell, from 1879 to 1884; J. W. Doane, from 1884 to 1898, and Orson Smith, the present incumbent, since 1898.

The vice-presidents and their terms of office succeeded in the following order:

John High, Jr., from June, 1857, until the fall of the same year, when he was succeeded by Walter Newberry, who acted as vice-president to fill out Mr. High's unexpired term. Jonathan Burr, from 1858 to 1860; H. H. Magie, from 1860 to 1862; Solomon A. Smith, from 1862 to 1863; W. E. Doggett, from 1863 until 1877; John Tyrrell, from 1877 to 1881; Byron L. Smith, from 1881 to 1885; P. L. Yoe, from 1885 to 1892; Orson Smith, from 1892 to 1898; E. D. Hulbert, the present vice-president, since 1898.



PRESIDENT ORSON SMITH.

BANKING DEPARTMENT. A general Banking business transacted. Accounts of banks, bankers, merchants and corporations solicited on favorable terms.

TRUST DEPARTMENT. Authorized by law to accept Trusts and receive deposits of Trust Funds. Acts as executor, administrator, guardian, conservator, registrar and transfer agent of stocks. Undertakes the management of estates.

FOREIGN EXCHANGE DEPARTMENT. Travelers' letters of credit and commercial credits issued, available in all parts of the world. Cable transfers made.

BOND DEPARTMENT. Government, State, County and City bonds bought and sold.

SAFE DEPOSIT VAULTS. The vaults are of the latest and most approved construction and afford absolute security against loss from fire or burglary. Safes rented from $3.00 per year upward. Trunks, boxes and packages received and safety guaranteed to the extent of the value placed thereon.

The Capital and Surplus of this Bank is $3,750,000

OFFICERS.

ORSON SMITH, President.
E. D. HULBERT, Vice-President.
J. G. ORCHARD, Cashier.
F. N. WILDER, Assistant Cashier.
F. G. NELSON, Assistant Cashier.
LEON L. LOEHR, Secretary of Trust Dep't.
P. C. PETERSON, Manager Foreign Exchange Dep't.
JOHN E. BLUNT, JR., Manager Bond Dep't.

DIRECTORS.

MARSHALL FIELD.	CYRUS H. McCORMICK.
ALBERT KEEP.	JOHN W. DOANE.
A. H. BURLEY.	LAMBERT TREE.
ELIAS T. WATKINS.	ERSKINE M. PHELPS.
ORSON SMITH.	MOSES J. WENTWORTH.
ENOS M. BARTON.	E. D. HULBERT.

CONDENSED STATEMENT OF THE CONDITION OF THE MERCHANTS' LOAN AND TRUST COMPANY OF CHICAGO, AT THE COMMENCEMENT OF BUSINESS, FEBRUARY 25, 1901, AS RENDERED TO THE AUDITOR OF PUBLIC ACCOUNTS PURSUANT TO CALL:

RESOURCES.

Loans and Discounts,		$17,435,771.73
United States Bonds,	$ 67,670.00	
Other Bonds and Stocks,	1,741,018.60	1,808,688.60
Due from Banks and Bankers,	$5,935,581.81	
Cash and Checks for Clearing House,	4,513,228.13	10,448,809.94
		$29,693,270.27

LIABILITIES.

Capital Stock,	$2,000,000.00
Surplus Fund,	1,000,000.00
Undivided Profits,	807,344.50
Deposits,	25,885,925.77
	$29,693,270.27

THE PEOPLE WHO CONSTRUCTED THE

MERCHANTS' LOAN AND TRUST CO. BANK BUILDING

AND TO WHOM CREDIT IS DUE FOR SUPERIOR WORKMANSHIP AND MECHANICAL APPLIANCES.

D. H. BURNHAM & CO., Architects, Chicago.

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Richmondt Wire Conduit Tubing

ELECTRO GALVANIZED EXTERIOR AND FLEXIBLE ENAMELED INTERIOR ON REAMED STEEL TUBING. (Patented March, 1900)

This pipe fills all of the requirements of and is approved by the National Board of Fire Underwriters.

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Our selection comprises THE BEST from all the leading factories, as well as our own, and our heavy purchases enable us to offer you these goods at prices which can not fail to please.

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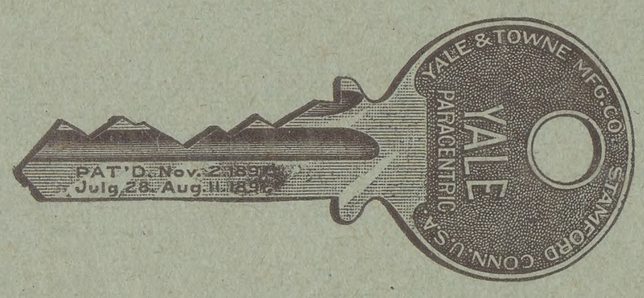

The Passing of a Familiar Form.

The original Yale Key, with its Trefoil Bow, was not copyrighted and is now generally used in all imitation Yale Locks.

Therefore, to protect the public against deception, we have abandoned the Trefoil Bow in connection with Yale Locks and substituted for it the new form of Key Bow shown above.

The Yale Lock and Key are interestingly described and illustrated in a 12-page folder which will be sent on request.

"Artist and Artisan," "Cut Glass Knobs," "Yale Night Latches," "The Vulcan Locks," and other brochures of interest to Architects may be had on application.

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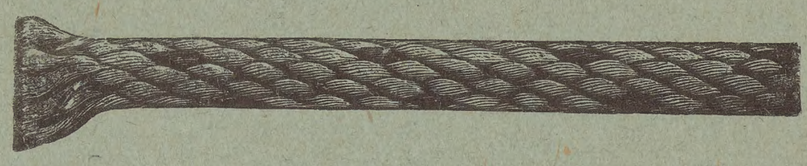
SAMSON SPOT CORD



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Luster

Is soon lost in cheap varnishes.
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